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3DArtist

10

Practical inspiration for the 3D community

MASTER THE ART OF

SURFACE SHADERS

Discover the techniques to make textures shine

• Feature

GET THE RIGHT SOFTWARE

All the major apps rated for jobs in the 3D workplace

• Step-by-step Lightwave tutorial

Future city atmospherics

Model towers, add volumetric lighting

• Your questions answered

Render Passes

How to use mental ray for effects

Plus: Double Negative – massive movie VFX like 2012, Studio Access – Saboteur

Reviews: iClone4 Pro, ZBrush online, EIZO ColorEdge CG243W, Muvizu

inside

FREE MODELS WORTH $392

• Vue tutorial

WINTER LANDSCAPE

Create realistic snow in a traditional, pastoral scene

ON YOUR FREE CD

Mercedes-Benz S-class
Full car model worth $78

Casino slot machine
Gambling model worth $98

Businesswoman
3ds Max & LightWave models

Fantasy outfits
Three clothing sets for V4

ip IMAGINE PUBLISHING

• modo 401 tutorial

HEAVY WEAPONS

How to construct a rail gun lair with primitives and characters

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It's a jungle out there. Swing through it

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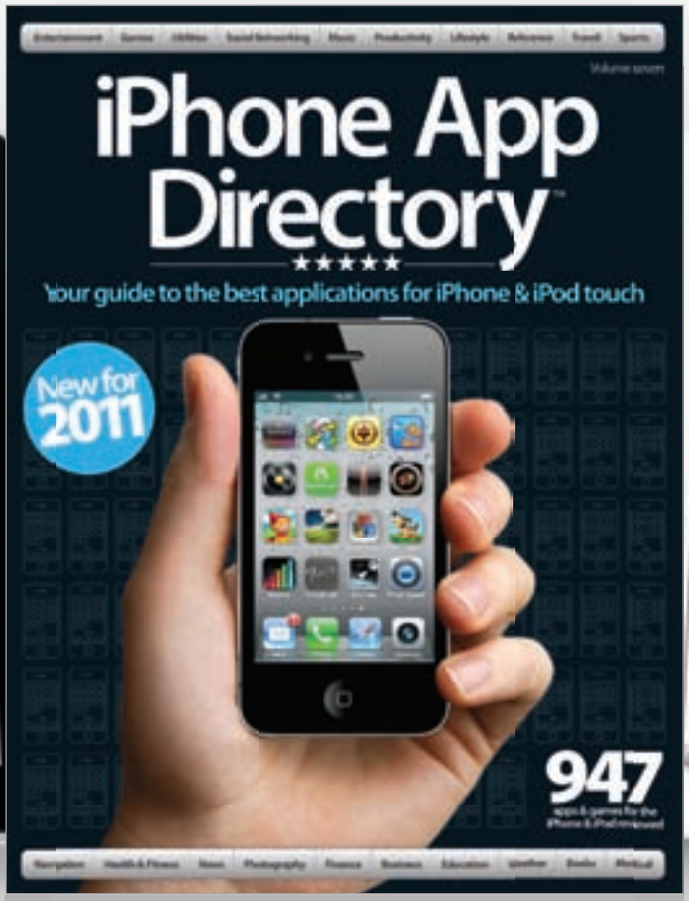

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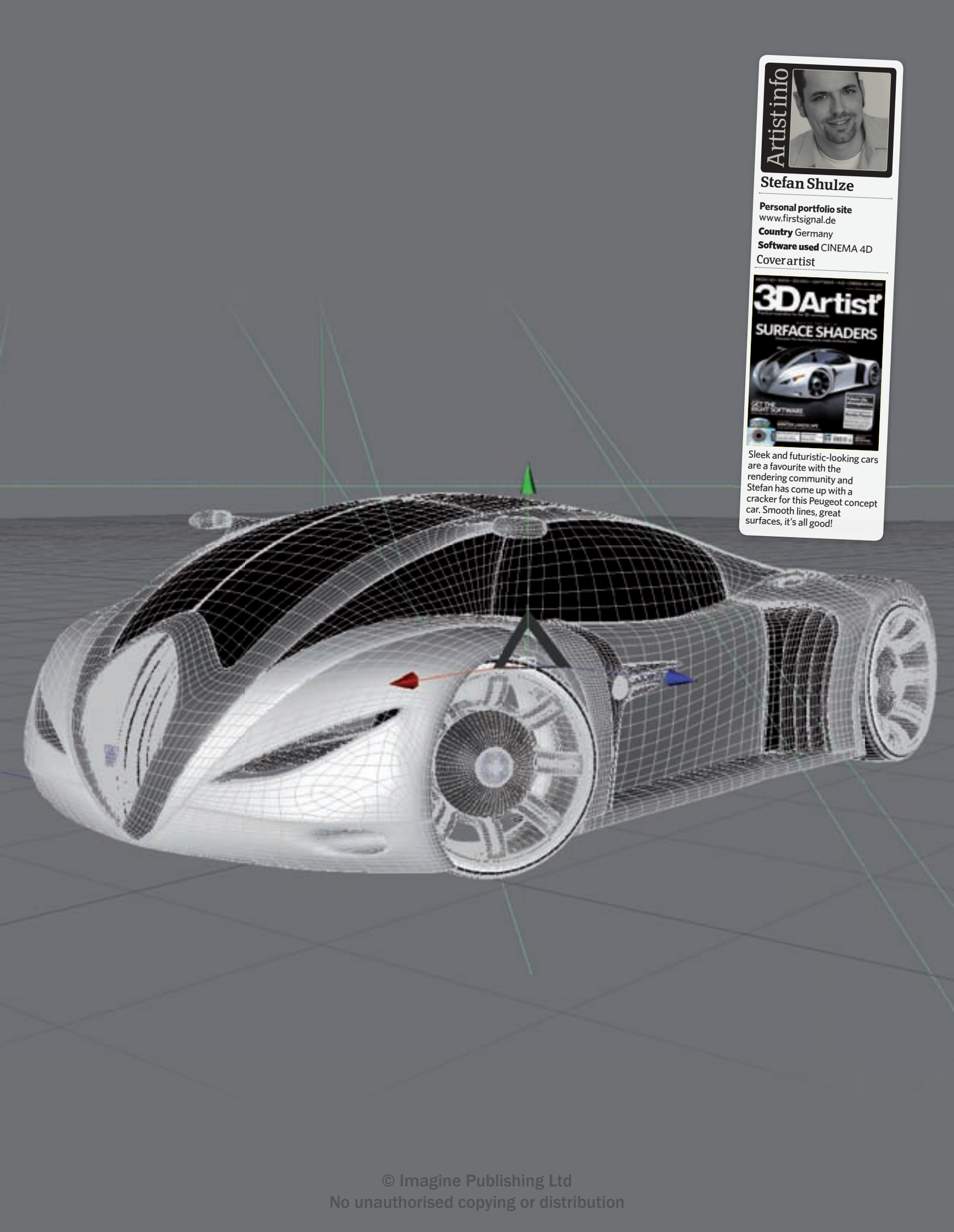

Artist info

Stefan Shulze

Personal portfolio site
www.firstsignal.de
Country Germany
Software used CINEMA 4D

Cover artist

Sleek and futuristic-looking cars are a favourite with the rendering community and Stefan has come up with a cracker for this Peugeot concept car. Smooth lines, great surfaces, it's all good!

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Welcome

to the magazine and 116 pages of amazing 3D

Every issue you can count on...

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

It's the end of the world as we know it. Well, according to the doomsayers in *2012* anyway. We talk to the visual effects maestros at Double Negative about the work they did on the Roland Emmerich epic disaster film, plus lots of others. Meanwhile, if you've ever wondered which software package you should spent umpteen man-hours learning so you can get the job you want, then check out our special feature this month. We take a look at all the major software packages, assess how easy they are to learn, what they cost, talk to people who use them and point out what areas of the CG industry they are used in. The choice is all yours.

Duncan Evans,
Editor

This issue's team of expert artists...

Neil Maccormack

LightWave users, we have a treat for you with the sublime lighting and atmosphere in the *City 2050* tutorial

David Crookes

Which software package do you want to spend the next portion of your life learning? David presents the choices

Paul Francis

Paul takes on the materials department of Poser in the Q&A lab. Here's how to create a shiny, futuristic room

Lance Hitchings

Lance runs a design studio in the States, and also comes up with solutions for all your general Maya-related problems

Dominic Davison

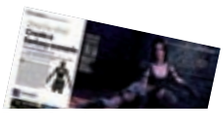
Handling both the Q&A department for Vue users and regaling us with a magical winter scene complete with snow

Daniel Lovas

The guy with CINEMA 4D in his DNA tackles the lighting problems when turning day into night

April Madden

April is deputy editor on **Digital Artist** magazine and a graphic artist. We make her review all kinds of books



Dani Garcia

Sliding across a tiled roof in the dark, watchful against detection... no, not Dani, but his *Female Rogue* tutorial

Rosie Tanner

Bringing you all the courses and galleries from the universities, it's our Rosie, the editor of **Photoshop Creative** magazine

Sarah Slee

In her final elf-like pirouette through the garden of the 3D community, Sarah brings forth all the beautiful 3D projects

Don Webster

Deep behind the front lines, there's something lurking in a hidden lair. Don brings an enormous rail gun to life

Rob Redman

Don't bother going to a university, do your learning online! Rob checks out Escape Studio's ZBrush course for this issue

Sign up, share your art and chat to other artists at

www.3dartistonline.com

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Imagine Publishing Ltd
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Contents 10

Discover how these images were created...

Create a winter wonderland

“Thomas Kinkade’s winter and Christmas scenes were certainly an influence in this picture”

46 Six-page behind-the-scenes walkthrough guide

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58

"I used the chrome preset, the thin glass preset for the windows and the Physical Glass preset for all the lenses"

Lance Hitchings on the shaders for *American Muscle Car*. **Page 58**

70

Your questions? answered

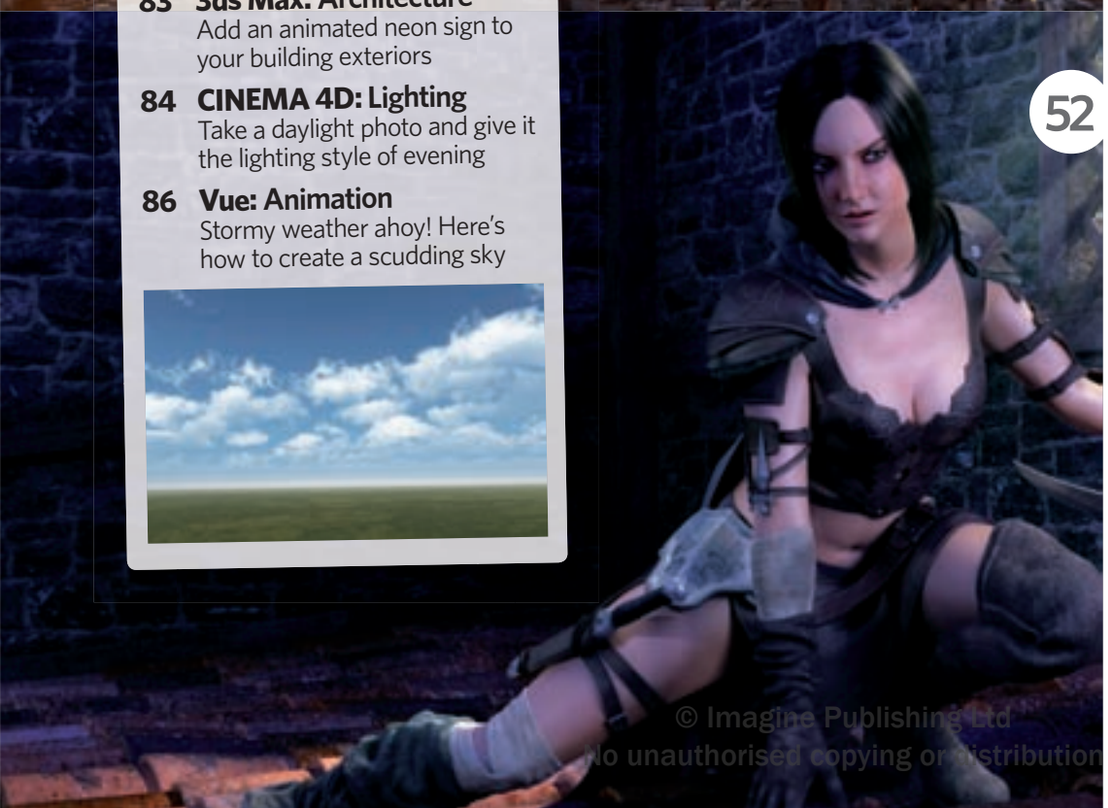
80 Maya: Rendering
Make use of the new Render Passes feature in mental ray

82 Poser: Materials
How to create a white, futuristic room for your characters

83 3ds Max: Architecture
Add an animated neon sign to your building exteriors

84 CINEMA 4D: Lighting
Take a daylight photo and give it the lighting style of evening

86 Vue: Animation
Stormy weather ahoy! Here's how to create a scudding sky



52

The Studio

Professional 3D advice, techniques and tutorials

46 Behind the scenes: *December Morning*
A festive, pastoral scene in the style of traditional art created with Vue

52 Step by step: *Female Rogue*
How to create a sneaky thief on a roof in the shape of a female rogue. A 3ds Max and ZBrush tutorial

56 I made this: Andy Strukowski, *The Land That Time Forgot*
Amazing detail from the time when dinosaurs ruled the Earth

58 Main tutorial: *American muscle car*
Time to use Maya shaders to give the Chevy Camaro a shiny finish

68 I made this: Pavel Romsy, *The Last Avia*
The last Czechoslovakian prewar biplane flies again

70 Step by step: *City 2050*
Discover how to create the atmosphere and lighting of a city of the future with LightWave

74 Behind the scenes: *Dora, Rail Gun*
How to construct the lair of a giant WWII rail gun using Poser and Vue

Continued overleaf

There's even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we've packed into this issue...

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INSIDE ISSUE TEN

Contents 10

Inspiration • Interviews • Reviews and more

$392 Fantastic models/gear on the disc
Page 112

12 The Gallery
Here are the lovely images festooning the Gallery this month

20 Community
News, readers' images and letters from the 3D community

28 Interview: Double Negative
One of the biggest VFX studios in the world talks about blowing things up in *2012* and more

34 Feature: Which software?
There are plenty of software solutions but which one should you learn to get the job you want?

42 Interview: Arcmedia
Boats and buildings in 3D visualisation splendour

46 The Studio
A world of tutorials and insights into the most amazing images

80 Questions and answers
Got questions about using 3D software? Get the answers here

88 Review: iClone4 Pro
Get into Machinima with the feature-rich animation package

90 Review: Escape's ZBrush course
Online learning course from Escape Studios rated

92 Review: Muvizu
A dreadful name but a cool animation program

93 Review: EIZO CG243W
When you need a massive widescreen monitor

93 Review: *Hero of the Rails*
New *Thomas the Tank Engine* movie goes CGI

94 Reviews: Books
A selection of the best 3D books

110 Subscribe today!
You don't want to miss an issue and it will save you lots of cash

112 On the disc
We've gone model crazy this issue with $392 worth of goodies

"The work on Saint Peter's involved building and then destroying Vatican buildings"

Alex Wuttke on Double Negative's work on the apocalyptic *2012*. **Page 28**

workspace 3D

Inside guide to industry news, studios, expert opinion & education

98 Industry news
Latest industry developments and announcements revealed

100 Studio Access: *Saboteur*
Run about the streets of wartime Paris looking for things to destroy. We check out the visuals

104 The Insider: Brent Zorich
What you need to know to get a job working for George Lucas!

106 Uni Focus: University of Westminster
We take a look at the BSc (Hons) Computer Games Development course to see what it offers

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Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

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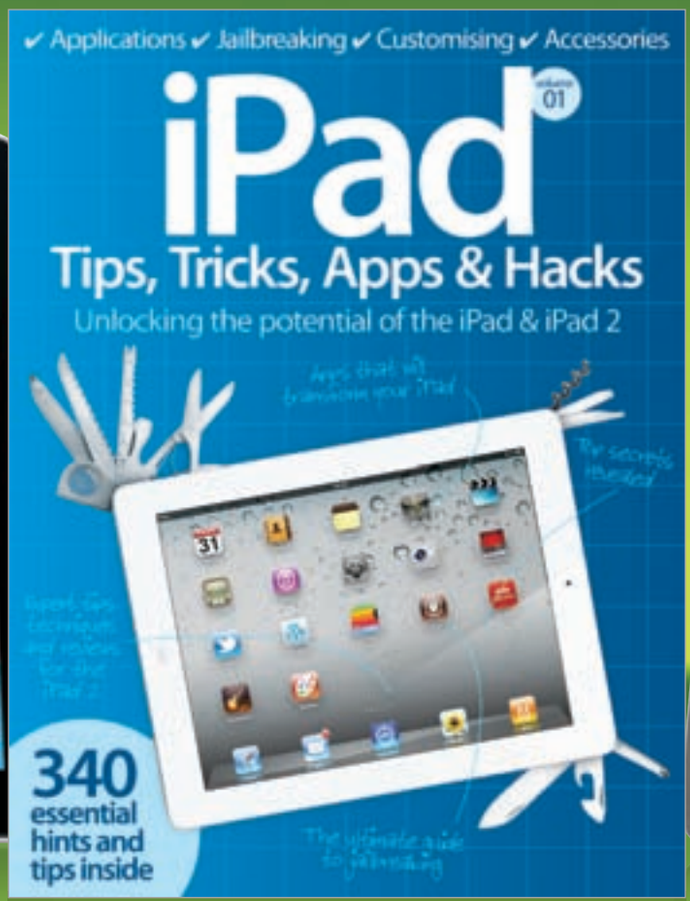

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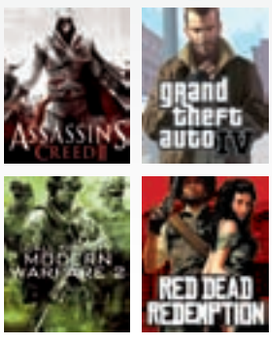

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WELCOME TO THE GALLERY

Eight pages of the greatest artwork from the 3D community

Images we love!

Artist info

Shane Dale

Personal portfolio site http://noahman.cgsociety.org/gallery/

Country South Africa

Software used 3ds Max, V-Ray, Photoshop, ShaderMap Pro

Work in progress...

> I had to improvise a design of a penthouse apartment within the Al Barari Development in Dubai. We had to produce over 50 stills

Alan Shane Lupton-Dale
Penthouse Pool View, 2009

Featured artists

Alan Shane Lupton-Dale

A luxurious penthouse visualisation

Jimmy Chow

A thousand words wouldn't begin to describe the detail in this work

Bolek Rykowski

Two modellers, two planes, too good not to be shown in **3DA**!

Juan Carlos Jiminez Vadillo

What the blue M&M gets up to in his downtime

Anatoll France

An atmospheric bar with appropriate lighting

Chaohong Liang

The legend of a beauty who's allegiance history can't decide on...

Salvo Brullo

A *Hellraiser*-esque image of Satan... pretty apt, when you think about it

Get your artwork featured in these pages

Simply send it to the **3D Artist** Gallery. Here's how...

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www.3dartistonline.com

2. Upload your images

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3. Tell us about them!

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Email or post

You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

duncan.evans@imagine-publishing.co.uk

The Gallery, 3D Artist, Imagine Publishing, Richmond House, 33 Richmond Hill, Bournemouth, Dorset, BH2 6EZ

Comment on more great 3D art...

Head straight over to **www.3dartistonline.com**, register and you can leave comments for other artists. Some of the people featured here already have their galleries, so get online and join our club!

Create your gallery today: www.3dartistonline.com

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> I was inspired by the cover photo of Yui's album last year, *My Short Stories*. I tried to simulate the clothes rather than sculpting them. Painting was kept minimal. In fact, 3,000 lines of Python code were developed to make the hair and clothes. These tools can be found on my website
>
> **Jimmy Chow** *A Short Story*, 2009

Artist info

Jimmy Chow

Personal portfolio site http://sites.google.com/site/cgriders/

Country Hong Kong

Software used Maya, Shave and a Haircut, Nuke, Photoshop, ZBrush, MaPZone

Work in progress...

The team Loves

> An excellent interpretation of the album cover, with well-polished, subtle details
>
> **Jo** Editor in Chief

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“This image was created entirely in Luxology’s modo while exploring different compositions for a dynamic dogfight illustration. I have been fascinated with planes since childhood, and I found 3D graphics to be a fantastic tool for realising this passion. I modelled the Bf 109 G-6 myself, and the P-51B was also done in modo by Piotr Krugiołka. Both models are used in a short animation we are currently working on”

Bolek Rykowski *P-51 B Mustang vs. Bf 109 G6*, 2009

Artist info

Bolek Rykowski

Personal portfolio site
http://brhplus.karyk.pl/
Country Poland
Software used Luxology modo

Work in progress...

The team Loves

“Is there anything better in the sky than an old-fashioned dogfight? We thought not!”

Ross
Head of Design

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> I decided to create a scene in which the car wasn't the most important element. I had created the M&M's Nascar Toyota Camry weeks ago, so I thought I'd reuse it in this scene by adding the character
>
> **Juan Carlos Jiminez Vadillo** *M&M's Racing*, 2009

The team Loves

A tasty picture, in more ways than one! If an image makes you want to go out and buy some chocolate, then surely it's a job well done...

Duncan
Editor

Artist info

Juan Carlos Jiminez Vadillo

Personal portfolio site
www.anypixel.com
Country Hong Kong
Software used 3ds Max, V-Ray

Work in progress...

Publishing Ltd

The team Loves

"Fantastic detail in the underground bar, and the lighting is spot-on. Plenty to keep the viewer's eye busy here"

Lora Group Art Editor

Artist info

Anatoll France

Personal portfolio site http://photoart.biz.ua/portfolio/

Country Ukraine

Software used 3ds Max, V-Ray, Photoshop

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“This work was done in a very short time, but I had to make the atmosphere work to suit a lounge nightclub. Many say that the lounge looks worse in reality than it does in my picture”

Anatoll France *Misto Light, night club*, 2009

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“Yinhu means white fox. The legendary fox converts to become a monster. In one legend she was bad, using beauty to obtain the confidence of others. In another legend she was good, wouldn't do bad things and just wanted a living space”

Chaohong Liang
Yinhu, 2009

The team Loves

“This image is all about the accessories, the colour scheme and the out of focus background”

Duncan
Editor

Artist info

Chaohong Liang

Personal portfolio site
N/A
Country China
Software used 3ds Max, Brazil r/s, Photoshop

Work in progress...

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Artist info

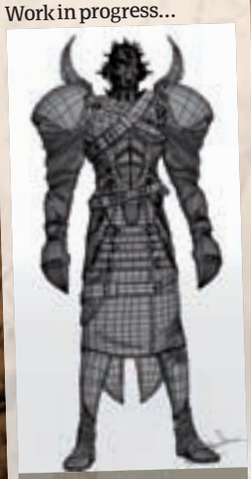
Salvo Brullo

Personal portfolio site
www.nucleus-3d.com

Country Italy

Software used 3ds Max, V-Ray, Photoshop

Work in progress...



The team Loves

"A great sense of perspective, while the background elements add a real sense of foreboding"

Lora
Group Art Editor

"The character is Satan, made in the style of Kazushi Hagiwara's comic book *Bastard!*. The modelling was done with 3ds Max, rendering with V-Ray, while the background was painted with Photoshop"

Salvo Brullo
Satan, 2009

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Show stoppers

SIGGRAPH Asia 2009 announces the festival's award winners

SIGGRAPHASIA2009

'Anchored', by Lindsey Olivares

From 16 December 2009, Yokohama in Japan will play host to the second annual computer animation festival SIGGRAPH Asia. In preparation for this, the winners have been announced for Best Of Show and Best Technical awards.

Lindsey Olivares, who now works for DreamWorks as a visual development artist, has received the Best Of Show award for 'Anchored'. "While working on my film I tried to push boundaries and innovate ways to use technology to create a film that felt like a moving painting. SIGGRAPH Asia exemplifies this idea of pushing the limits of technology and creativity," she says.

Meanwhile, *Assassin's Creed II* – the awesome third-person action adventure game from Ubisoft – and Digic Pictures bagged the Best Technical award. Alex Sandor Rabb, who produced the clip, commented: "This award truly belongs to everyone at Digic Pictures who has contributed to the film, outdoing themselves on a daily basis."

Over 8,000 people from across the globe are expected to attend SIGGRAPH Asia 2009. The conference itself starts on 16 December, with talks planned from a number of key speakers within the industry. The exhibition part of it starts on 17 December, which is where attendees can check out the many products and services on show, and also meet face to face with potential employers. The festival runs until 19 December 2009.

If you'd like to find out more about the SIGGRAPH 2009 event then simply visit www.siggraph.org/asia009. Or check back here next issue when we'll have the full lowdown on the event.

> "SIGGRAPH Asia is a common place for people of similar minds to gather and help push the industry forward"

3DArtist online.com

Are you attending SIGGRAPH Asia 2009? Discuss this and more with other 3D artists at **www.3dartistonline.com/forum**

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3D web update

New sites and changes to your favourites – it's all here!

Totally 3D

3D Total has now launched the beta version of its textures portal. The Texture & Reference Image Library is home to over 12,500 high-res royalty-free images, and luckily for us digital artists, they're all free!

Another ace thing about this new service is that it's expanding on a community site that is tried and trusted, with lots and lots of artists the world over. It is constantly evolving too, and it's expected that you'll even be able to submit your own images in the near future.

The number of images available is on the increase each month. There's already a great range to choose from, so why not trot along to **http://freetextures.3dtotal.com/** to take a look through the resources on offer and build up your archive?

FootageHub

Royalty-free image site Artbeats has just launched FootageHub, which offers artists a wealth of stock video footage to choose from at the click of a button. FootageHub is essentially a reseller of some top brands of various footage types, and you can search for a massive range of video snippets with ease. In addition to that, you can choose from high-res or low-res royalty-free clips, with the prices varying according to your choice.

If you're looking for inspiration or you'd like to include one of these pieces in your projects, then it's worth checking out **www.artbeats.com/footage/hub**. You can even submit your own footage or shots – all you have to do is contact **submit@artbeats.com** for further information.

Ivan used 3ds Max with mental ray, After Effects and an Ivy Generator plug-in

Masterpiece

Sponza Artium Noonlight

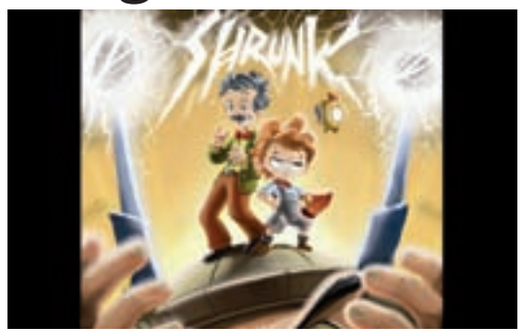
Meet Ivan Ivanov, a student at the Art Institute of California and creator of this summer scene

Ivan Ivanov www.vankata.info

Lighting is a difficult aspect to perfect in 3D. In fact, it can make or break a scene, which is why Ivanov embarked on this project: "I started this image as an exercise [to practise] my lighting and rendering skills using Autodesk 3ds Max and mental ray."

Working with modeller Marko Debrovic, Ivanov created *Sponza Artium Noonlight*. "This image is supposed to depict summer sunlight hitting an indoor area around noontime," he says. To see more of his work, head over to www.vankata.info.

Free games



Keep yourself amused with this little lot

Games made during the Dare to be Digital computer game design competition can now be downloaded for free from www.daretobedigital.com. The University of Abertay, Dundee hosted the ten-week competition, which involved 14 teams of five students from across the globe.

The competitors were mentored by such big-name developers as Rockstar, Sega and Sony Computer Entertainment Europe, plus many others. Each team's game was demonstrated to judges and the public at Dare ProtoPlay in Edinburgh to coincide with the Fringe Festival.

Choose from a selection of platform and arcade-style games, including the competition's winners, and check out the new talent for yourself.

Good hunting

Evolve CG calls for entries

Evolve CG has announced the start of its competition The Hunter, the site's first annual student contest. Any person studying a computer graphic art or animation course at any institute is eligible to submit their entry. You can also enter if you are a recent graduate of one of those courses, but it has to have been within the past seven months. All in all, there are $23,000 worth of prizes up for grabs. Entrants can choose from various categories, all with a view to creating the ultimate hunter character or scenario. Visit **www.evolve3d.net** for further details.

Website of the month

CG India http://cg-india.com/

CG India was launched back in 2005, and prides itself on providing news and resources to artists and designers worldwide. Its fresh blog-style design is appealing, as is its vast selection of freebies. Browse through the 3ds Max and V-Ray tutorials, check out the models and watch the video clips, all for free.

On the main homepage you'll find the latest CG news, interviews and features – even a competition section. Download the CGI gadget for Google to ensure that you never miss a drop of what's going on over at the site. Head to **http://cg-india.com/** and have a look.

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Free 3D Resources

Free 3D Resources

Extra, extra! Get your fresh batch of freebies from here!

Exchange 3D

Here's a marketplace with some tasty morsels on offer for absolutely nothing
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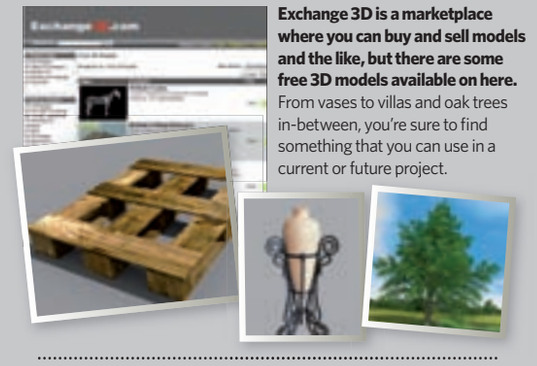

Exchange 3D is a marketplace where you can buy and sell models and the like, but there are some free 3D models available on here. From vases to villas and oak trees in-between, you're sure to find something that you can use in a current or future project.

Oyonale

There are only a few models to choose from, but it's definitely worth a look
Web: www.oyonale.com

Oyonale offers a small selection of 3D models in POV-Ray, CINEMA 4D and/or Wavefront OBJ formats. The range features a bizarre mix of ladybird, fire extinguisher and weapon models for free. Our favourite has to be the Mini Cooper. Take a look at them for yourself.

WireCase

Don't miss the free models from this site
Web: www.wirecase.com

Although there aren't a great deal of freebies on offer here, there are some useful models to browse through, such as a tree, sofa, bottle and so on. Some of them also have a star rating, which is helpful.

Ray of light

The Lightroom 3 beta is now under way, and you're all invited

Adobe has announced that its public beta of Lightroom 3 is now available. Anyone with an internet connection can test the new version of the digital darkroom, which you can use to organise, tweak and show off your images. The beta is compatible with Macs and PCs, but is only available in English. New features include a watermarking tool, import handling and portable slide shows with audio, plus loads more.

The current Lightroom 3 beta doesn't expire until 30 April 2010, so visit http://labs.adobe.com/technologies/lightroom3/ to take a peek.

work in progress

Citroen HY Van

We chatted to our man with a van, 3D and motion graphics artist Antonio Milo, about his latest work in progress, *Citroen HY Van*

Antonio Milo www.antoniomilo.com

Many people like to take on a vehicle as a project, but Antonio Milo has decided to cut out the middleman and make his own from scratch. This van has character and rust by the bucketload, but that's all part of the charm, as Milo tells us: "I came across this van and liked its quirks with its distinctive corrugated Junkers Ju 52-inspired body, so figured it would be perfect."

The project has taken around 50-60 hours so far and hasn't been without its challenges, as Milo explains: "The rust was by some margin the biggest challenge. I used a combination of blend masking and procedural mapping to get the results you see here."

So where will he go from here? "My plan is to create an image with a very intimate feel, personifying the rusting of this vehicle as if it were an old-aged pensioner, giving it a unique character." See more of Milo's work at www.antoniomilo.com.

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Artist spotlight

Mr Potato

Here is an artist who'll bring a smile to your day with a completely different type of toy story

Saman Khoram www.samankhoram.com

This collection of characters from CG generalist Saman Khoram is sure to brighten up any screen or page. They feature in a short animation series that's he's working on at the moment.

Most of the modelling has been done in 3ds Max, with the rest created in Softimage. Meanwhile, Photoshop has been used to composite all the rendered passes, and then for the outputting, as Khoram explains: "I called the boy Mr Potato and the rest are characters that he will meet in episodes of this animation."

To catch up on the rest of his adventures, visit **www.samankhoram.com**.

Software shorts

Get the lowdown on updates and launches

Unity version 2.6

Version 2.6 of the multiplatform development tool Unity is now available completely free of charge. Formerly known as Unity Indie, Unity is offering all developers the opportunity to create with its latest software. If you fancy the idea of getting involved then head on over to **http://unity3d.com/unity/** to take a closer look at the specs and get all the information that you need.

Google Building Maker

Google has launched a 3D modelling tool called Building Maker, which has been created so that people can add buildings to Google Earth. Simply choose a town or city anywhere in the world, make a building using the photographs provided, then save it for review. If it's approved you could see it on Google Earth! Visit **http://sketchup.google.com/3dwh/buildingmaker.html/** for more details.

What's in next issue

Learn how this incredible image was created

Issue 11: on sale 06 January

For more issue 11 info, visit **www.3dartistonline.com**

Tools of the trade

BE.EZ LA ROBE

Keep your tablet safe and sound

Many people would class their Wacom graphics tablet as an essential piece of kit, and now you are able to protect it with one of Be.ez's new sleeves. These 5mm-thick cases are specifically designed to fit tablets in the Intuos4 and the Bamboo range.

The fashionistas out there will be pleased to hear that the LA Robes have a super sleek black exterior and bright green interior. They're made from a soft and lightweight memory foam-type material, which means your pride and joy will be kept safe, secure and free from scratches. There's even a storage area for the pen and pen tips.

Prices start from £17.95 for the small Bamboo tablet sleeves, and £22.95 for the small Intuos4 sleeve. Visit **www.be-ez.com** for more details.

Use the LA Robe to carry the tablet by itself, or as extra protection when put in a laptop bag or rucksack

3DArtistonline.com

Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at

www.3dartistonline.com

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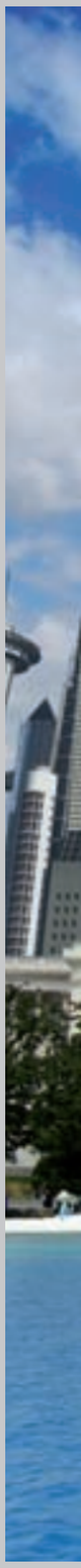
Switch on to the new generation of digital artists, splattering the 3DA website with their artistic bytes

Picture of the month

A

B

C



A Bathroom
» **Vasyl Mihay**
Vasyl says: "This was created with 3ds Max and V-Ray."
We say: Great design, super reflections and a classic colour scheme. A great interior image.

B Chav
» **Paul Woodward**
Paul says: "This image has many typical British icons, such as Burberry, the Union Jack and the red phone box, and it really was just a bit of fun. I was aiming for a mix of Pixar and Aardman, CGI meets stop motion, but I would be happy to be as good as either of them."
We say: An amusing and interest-packed image reflecting the worst elements of today's society.

C Do unto others
» **Kurt Miller**
Kurt says: "Caron with the longbow and her mercenary bodyguards are rebelling against her evil uncle on a mining planet. This is a book cover for Mike Z. Williamson. The image was created in 3ds Max, Bryce, Poser and Photoshop with a Wacom tablet."
We say: Check out those colours and the evil uncle in the background. There's lots of fun and elements to pore over.

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Share your art
Register with us today at
3DArtist online.com
www.3dartistonline.com
to view the art and chat to the artist

D

D DC Beach
» **Souheil Abdesselam**
Souheil says: "I made this for a contest where the idea was to give the capital a new look. I started with a photograph and put everything in cards inside 3ds Max. The whole model was lit by Vue 7 xStream, and the postproduction was done in Photoshop."
We say: A cracking futuristic image with architectural interest, social commentary and an ecological warning. What more do you want?

Pictures of the week

HERE ARE THE LATEST IMAGES TO BE AWARDED THE PICTURE OF THE WEEK AWARD IN THE LAST MONTH

Early morning chores
» **Dominic Davison**
Dominic says: "Rendered in Vue with various items, including ones from Cornucopia."
We say: We think you should stop now. This fabulous image is reminiscent of Gold Hill where they shot the old Hovis adverts many years ago.

Dungeon Warrior
» **Paul Francis**
Paul says: "This was a Poser Pro render, although I added the smoke and atmospheric depth in Photoshop. Otherwise this is pretty much as it came out of Poser. It was meant to be a sunset scene but works better as artificial light, I think, so I made it a closed environment. They were commercial models, while the custom lights were made by me."
We say: We liked it so much that we did the tutorial on it in issue 9. It just shows what can be achieved with Poser if you have the skill.

The Oracle
» **Ehsan Azzuz**
Ehsan says: "A figure rendered in Vue with postproduction work in Photoshop to get the overall effect."
We say: More weird science from Ehsan. This time it's a kind of tortured, evil overlord figure.

Baroque Grandeur
» **Jack Tomalin**
Jack says: "A promotional piece for the Baroque Grandeur product we created. LightWave 9.6 and Photoshop."
We say: Sumptuous colours and fabrics for a thoroughly pleasing interior scene.

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Have your say

Write, email or use the website forums to get in touch about the magazine, your problems or triumphs

Send your letters to...

Email the team directly with your letter
3dartist@imagine-publishing.co.uk

Log in and leave your comments on the forum
www.3dartistonline.com/forum

POST TO:
The Editor, 3D Artist,
Imagine Publishing,
Richmond House,
33 Richmond Hill,
Bournemouth,
Dorset
BH2 6EZ, UK

Flying high

Attached is an image that I thought you might like to see. It depicts a Grumman F9F-5 Panther, which was the first Grumman-designed US Navy carrier jet fighter. This image represents VMA-223, a US Marines squadron based in the Pacific during the late Fifties and still to this day flying Harriers. It was modelled in CINEMA 4D, Poser, BodyPaint and Photoshop.

Gordon Bain, by email

Nice-looking plane, Gordon, although it's just a bit too clean and even for our tastes. A bit of grunge or some weather interaction and a little more contrast would make it even better. Good work all the same.

To pose or not to pose

As an avid customer of your magazine, I think it would be appropriate for me to air my concerns and hope you can assist me.

"Poser is for unimaginative nerds that like to undress Barbie dolls." With phrases like that running through the internet, is it still wise for someone new to the 3D world to take that software and pursue a career with it? Also, the fact that Poser only gets less than half of the page time on your magazine seals the point of that statement. The software is quite easy to grasp unlike other 3D applications, but it's those other applications that make their way into the 3D industry demand market. So is it wise to continue chasing a career with the affordable Poser software or will switching to an expensive piece of 3D software be better in the long run?

Agbos, Brighton, by email

It depends on what you actually want to do, really. If you can use Photoshop and want to create artwork for use on books, marketing, websites, etc, then Poser can be a fast and efficient way of creating a good basic image that you can then tweak and enhance. I know a couple of people who use Poser and make a living producing artwork. If you want to work in film, games or at a studio, then you need to be looking at a different type of software, such as Maya or Softimage, or if you want to do architectural visualisation then 3ds Max is the standard. If you want to work on indie VFX animation then Blender is an option, or CINEMA 4D for matte paintings and TV VFX.

Recognising that, we have a full page dedicated to Poser in the Q&A section and we carried a Poser tutorial in issue 9 – not for those who simply want to create naked girls, but to show what can actually be done with the program.

Grumman F9F-5 Panther
Reader Gordon Bain composed this Panther model using CINEMA 4D, Poser, BodyPaint and Photoshop

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The bottom line is that in order to create anything worthwhile, you need to have imagination and creativity. You can learn the mechanics of the sophisticated programs, but if you don't have a vision in your head then you'll just be working to other people's briefs. The problem with a program that renders premodelled content is that it's all too easy to produce work that looks like everyone else's with the same content, or work that doesn't show any imagination because it's relatively easy to get a basic rendered result. Ultimately, it's all down to what you want to do in the industry.

Have you got the patience for a three-issue tutorial? That will be 27 pages!

Longer tutorials

Just a quick thank you for a great magazine. Your magazine is now my first purchase of the month and has become a really good, inspiring read. It has, in my opinion, overtaken another 3D magazine, which I think has become elitist and is now geared to the top-end professional users. I have been dabbling with 3D for a few years now and your mag is top-notch. There is just one thing you could do that would make it perfect.

Would it be possible to get the artists for some of the tutorials (especially the issue 8 *Space Marine* cover) to go into a step-by-step tutorial over five or six issues and perhaps put this online as a download for the major packages (similar to what *3DCreative* magazine does), maybe with a small fee for the PDF download? The overview of the *Space Marine* tutorial was great to read but I really, really wanted an in-depth tutorial right from the modelling stage to the finished composition. I know there are tutorials like this on the internet, like the infamous Joan of Arc one by Michel Roger, but these type of tutorials really do help someone like me out a lot.

Gary Jackson, by email

Well, the main tutorial covers nine pages per issue over two issues, which is what we reckon most people will have the patience to read or wait for. I reckon we might be able to get a three-issue one, which would offer 27 pages of material, but five or six issues is too much for the magazine. The PDF option is an interesting one, but we'd have to balance sales of the PDF against the extra cost of paying for the longer tutorial, which would be very high unless it was negotiated at flat fee for the extra material. I'll look into it.

Wrong format

I got my copy about a week ago down here in New Zealand. Well done, it was probably the best issue out yet. The modo article was really interesting and the CD content was excellent, although I was very disappointed that the street scene was in .Max format only.

Nigel, via the forum

We make every effort to get open formats for the objects and models that go on the disc, but sometimes it is supplied and can only be distributed in one format. We do try to avoid the .Max format wherever possible, as it is too restrictive.

Subscribe, subscribe

Hi, I saw in the Magazine Subscription section on the forum that there is an offer for US readers, and I was wondering if there was something similar for Canadian subscribers (I cannot add new posts in that section)? I would guess that it costs about the same to send the magazine to either the US or Canada. I can't seem to find any similar offers for Canadian subscribers for any of the other Imagine magazines. I tried contacting Lucy Nash who posted the offer, but never heard back – is she still the right contact or is there someone else who is now responsible for these offers?

Wayne, via the forum

We are nearly there with a matching Canadian offer to that of our USA one. The reason for the price difference was that it was much cheaper to ship to the US than most other countries, but we have been working hard on our supplier to get our Canadian prices down to match them, and I'm pleased to say that once we have amended the subs forms online the US and Canada will have the same offers. Currently, for USA subscribers there is a reduced £50 subscription instead of £80, but it expires on 31 Jan 2010 so get in there quick.

Canadian readers will soon be able to subscribe to **3D Artist** for the same prices as our fantastic USA offers

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Duncan Evans talks to the visual effects and CG supervisors at Double Negative about their work on major Hollywood films

Positive effects

> VFX companies in London have all matured to the point where we can compete with the established US companies, not only on cost but also on quality

Ken McGrough is a visual effects supervisor at Double Negative

Company Double Negative Visual Effects
Founded 1998
Company website www.dneg.com
Country UK, Singapore
Expertise All aspects of CGI for TV and film
Client list Warner Brothers, Universal Studios, DreamWorks SKG, Film4, New Line Cinema, Idéale Audience, Working Title Films, Paramount Pictures
Software used 3ds Max, Maya, Houdini, Shake, RenderMan

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A One of the key sequences for Roland Emmerich's 2012 involved lava bombs raining down on John Cusack's RV causing great rifts to appear

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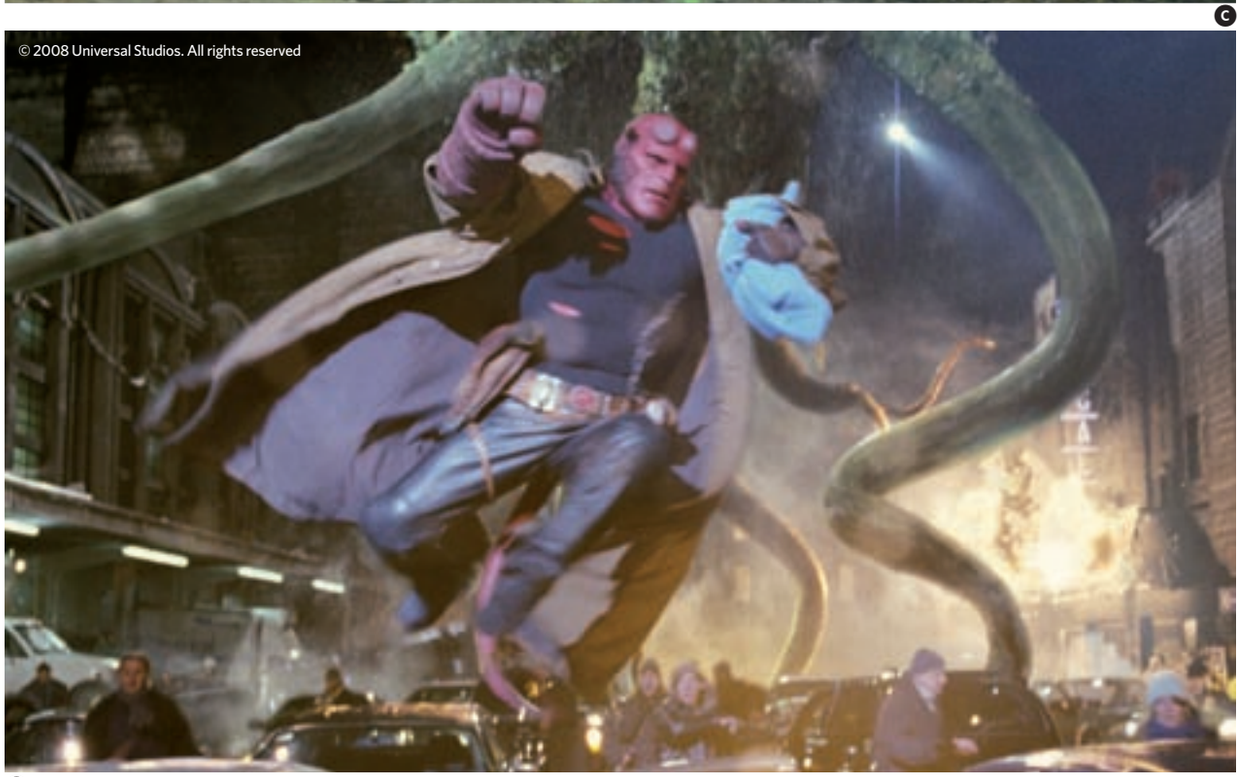
C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B B A giant earth creature appears behind Ron Pearlman as Hellboy. DNeg complete pre-vis work and effects for this sequence

After setting up shop in London in 1998 with a scant 30 employees, Double Negative has grown to be one of the biggest visual effects companies in the UK, now employing close to 600 people and having worked on a raft of major Hollywood titles over the last two years. Ken McGrough is a visual effects supervisor and was recently the head of the 3D department – a role that is rotated around the VES people to keep them fresh. McGrough got his 3D career on track when he landed a job as technical assistant at Industrial Light & Magic. After being promoted to technical director, he was then instrumental in developing technologies that were spun out across the rest of 3D industry. We asked McGrough to elaborate on this.

Ken McGrough: In those four years I did a variety of work, however, I focused mostly on particle FX animation, rendering and compositing. I really enjoyed solving the types of shot and pipeline-related technical problems that most people would consider dull. However, the one thing I'm most proud of is my involvement in developing ambient occlusion, working with Hayden Landis and Hilmar Koch. That work was done for *Pearl Harbor* and actually started off being just a small part of a bigger indirect illumination baking pipeline. It proved to be so useful that we didn't really use the rest of the pipeline that much.

3D Artist: *After a spell at DN, you moved on to Weta and had a leading role in bringing Gollum to life for* The Lord of the Rings.

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D

C The flying Sky Vessel of Captain Shakespeare, brilliantly portrayed by Robert de Nero, was a DN construction. Scenes of it flying around were entirely CGI

D It's the end of the world as we know it. The lava bomb sequence involved fluid mechanics, particle and lighting systems, all mixed in together to create a rain of fire

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What were the technical developments that you worked on here?

KM: While at Weta I was first tasked with developing the skin shading for Gollum. In particular, I developed the subsurface scattering technique used to give Gollum's skin its translucency. Out of this work grew the development of an entirely new lighting and rendering pipeline, including a way of computing ambient occlusion based on depth maps. As always these things are team efforts, and both Kevin Smith and Dan Lemmon were instrumental, among others.

3DA: *How many people now work at DN full time, and do you draft in extra help for heavy workloads?*

KM: Double Negative currently has around 600 employees in the London office, plus another 50 employees in our Singapore office. We try to avoid hiring artists short term to get through the crunch periods. Whenever we do hire an artist, the intention is that they will work for us for a very long time. To make this work we need to be very careful with our scheduling, and having a large base of generalist TDs helps as well. So far this has worked very well for us, and the artists seem to be happy both with the stability and also with the variety of work.

3DA: *Despite the global recession, the appetite for VFX appears unabated. Have you found the demand showing any sign of slowing down or is it increasing because relative costs are falling?*

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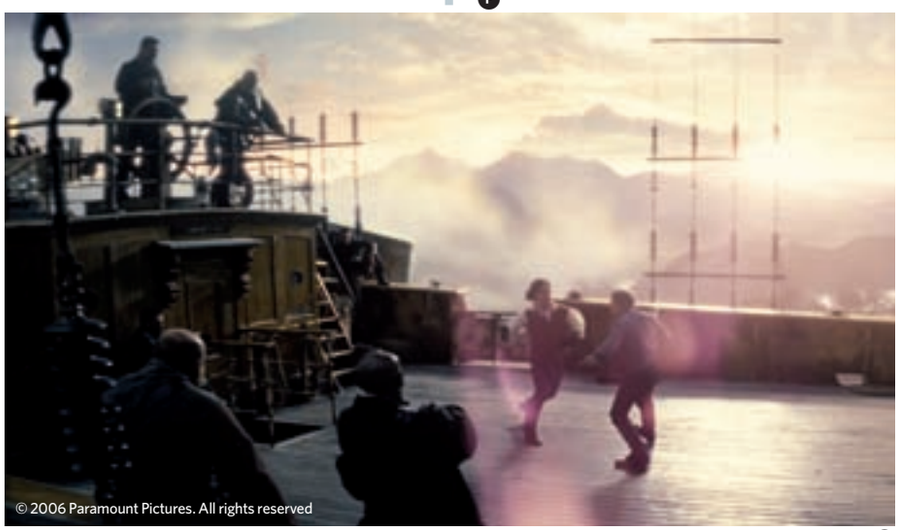

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G

Key Project

Stardust

The main areas of work for Double Negative on Matthew Vaughn's 2007 magical Christmas release *Stardust* included the extensive photorealistic environments, the Sky Vessel flown by Captain Shakespeare, sky replacements, green screens and the magic effects used to differentiate between the different witches. The most difficult sequence made heavy use of the main areas of visual effects, namely the vessel and the environments.

The Sky Vessel was designed by production designer Gavin Bocquet, and went through some minor alterations to its balloon shape during postproduction. CG supervisor Rick Leary designed the mechanism and dynamics for opening and closing the lightning nets.

The director had been very clear in his brief for the look – the vessel needed to look Victorian and it needed to look worse for wear. A major section of the Sky Vessel's hull was built within a green screen set at Pinewood with a heavily distressed look. It was Double Negative's task to match the Sky Vessel identically with digital set extensions in keeping with this look. "Most Sky Vessel shots needed CG topping up on the set construction and in some shots the entire vessel was replaced," recalls Leary.

Another major aspect of the work for Double Negative were the CG environments, as VFX supervisor Chiang recalls: "As we started shooting, we realised that Matthew (Vaughn) wanted to move the camera in a particular way and that opened up the environmental effects." The geography is needed to show the relation of the real world to Stormhold; Chiang wanted to see amazing vistas that would show the huge magical Kingdom of Stormhold. The live-action locations were in Iceland and the Isle of Skye, and this provided guidance to the types of mountains and geography that were required, but outside of this the Double Negative team were given free rein to design the landscape.

portfolio highlights

Double Negative's recent roll call

2009 *2012*
2009 *Sherlock Holmes*
2009 *Angels & Demons*
2009 *Harry Potter and the Half-Blood Prince*
2009 *The Boat That Rocked*
2009 *Fast & Furious*
2008 *Quantum of Solace*
2008 *Cloverfield*
2008 *10000 BC*
2008 *In Bruges*
2008 *Doomsday*
2008 *Hellboy II: The Golden Army*
2008 *The Dark Knight*
2007 *Atonement*
2007 *Harry Potter and the Order of the Phoenix*
2007 *The Reaping*
2007 *Stardust*
2007 *Hot Fuzz*
2007 *The Bourne Ultimatum*

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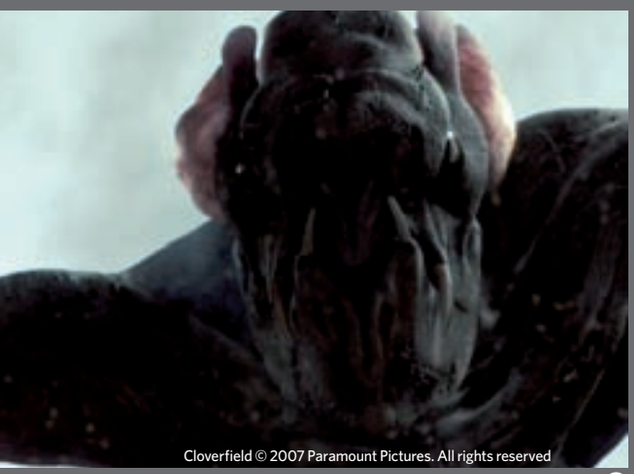
Taking the hot seat here are Mike Ellis, who was VFX supervisor, and David Vickery, who was CG supervisor on *Cloverfield*

Inside the movies

Discover just what is involved in making a blockbuster come to life

> "We simulated the effect that a tail swipe from an enormous monster might have on the ironwork"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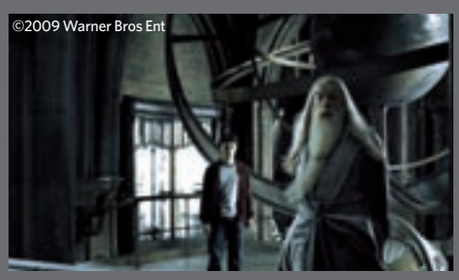
H

Key Project

Harry Potter & the Half-Blood Prince

Last summer's blockbuster was the *Harry Potter* film, *The Half-Blood Prince*. Director David Yates and VFX supervisor Tim Burke had worked with DN on previous *Potter* films so had no qualms about coming back for both the *Half-Blood Prince* - now released on DVD/Blu-ray - and *The Deathly Hallows*, which is in production. DN supervisor Paul Franklin led the team that worked on a number of major sequences, including the opening titles, the scene where evil sweeps into London and destroys the Millennium Bridge, the attack on the Burrows and the Pensieve sequences, as well as the effects in the Room of Requirements and the Astronomy Tower.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3DA: *Let's talk about some of the big movie projects specifically that DN has worked on, starting with* Cloverfield *from early 2008. This really took the premise of the personal perspective in a monster disaster movie like* War of the Worlds *and married it to the* Blair Witch *handycam footage concept. How hard was it to match moving CG elements like the head of the Statue of Liberty to very shaky camera work? And the poor old Brooklyn Bridge gets ripped apart in one – how did you tackle this?*

Mike Ellis and David Vickery: In the Brooklyn Bridge sequence, the film's heroes are trying to leave Manhattan by crossing the Brooklyn Bridge on foot, getting separated by the chaos of other people. The camera then follows the actors as they make a desperate run to get off the bridge before it totally collapses. All of this action is seen through the handheld camera at pedestrian level. We knew that this couldn't be shot on the bridge itself and that we would need to build a fully CG bridge and environment.

First, the sequence was previsualised by The Third Floor, then the production built a 200-foot section of the walkway on a green screen stage at Downey Studios in LA. The walkway surface was built with about 20 feet of the handrail attached to a single lamppost for the actor to climb onto. Lighting was set to match the lampposts that light the real bridge. LIDAR was used as a basis for building the CG bridge and extensive HDR (high dynamic range) texture photography was taken of the bridge and the surrounding environment.

I, along with lead artist Phil Johnson, referenced archive footage of suspension bridges under the huge stresses caused by storm weather and hurricanes. We simulated the effect that a tail swipe from an enormous monster might have on the ironwork, tarmac and masses of cabling that normally keep a suspension bridge from falling. The simulation sent huge ripples along the bridge, tearing out cabling and causing the support stanchions to collapse, creating some fantastic images.

I

When it came to shooting the live action on the green screen stage, the team knew that tracking was going to be a problem. The director wanted to keep the camera very dynamic, down among the crowd one minute then panning off the bridge, then up to look at circling news helicopters, etc, all the time moving and zooming erratically. At times we would be looking fully at a green screen, while at other times we only catch tiny glimpses of the green screen and the frame would be almost filled with moving people. Normally our software can solve tracking problems with a degree of automation, but many of these shots proved too complex and our tracking team, led by Sam Schwier and Joel Prager, ended up tracking most of the shots by hand, frame by frame. It was an enormous task.

Another complication with this sequence was with grading the green screen elements. We shot the Brooklyn Bridge footage in a full 360-degree green screen stage and, of course, everything came back very green. Matt Reeves and Michael Bonvillain, the DOP, wanted to use as much natural lighting from the scene as possible, so in this case the actors were walking along the bridge under widely spaced lampposts between light patches and very dark patches. However, the finished sequence – supervised by sequence leads Victor Wade and Sean Stranks – looked excellent, and when the individual shots were hooked up together it worked great, as long bursts of handycam footage amounted to about three minutes of screen time.

Both the Brooklyn Bridge sequences contained crossover shots between Double Negative and Tippett Studios. From the very beginning of the project we worked very well together, immediately sharing resources such as on-set survey data and photography. Constant dialogue ensured that there was no repetition and the two studios agreed at an early stage which facility would provide elements, etc. We ensured that we shared as much information as we could.

E The first sign that something horrible is happening in New York comes when the head of the Statue of Liberty goes bouncing down the street in front of *Cloverfield*'s main characters

F One of the other areas in *Stardust* that was worked on by DNeg was the magical effects used to differentiate between the various witches. There were also environment and sky effects

G While there was an actual set for the Sky Vessel in *Stardust*, it often had to be extended by DNeg digitally and in one scene was replaced entirely with a CGI set

H The monster in *Cloverfield* isn't seen clearly until right at the end of the film, so all the effects teams had to contend with was writhing limbs and tails

I The other main sequence that DNeg worked on in *Cloverfield* was when the characters try to cross the Brooklyn Bridge. This was actually shot against a green screen and composited with the CGI

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Alex Wuttke, head of 3D at DN and VFX supervisor for *2012*

It's the end of the world

The Kaiser Chiefs predicted a riot, but the Mayan's predicted the end of time itself

The biggest film of the year, at least in terms of destroying things, was undoubtedly the Roland Emmerich apocalyptic epic *2012*, based on the Mayan prediction that time itself would end in 2012, the disaster being brought about by galactic core alignment. For this project we talked to Alex Wuttke, who has just taken over from McGrough as head of 3D at DN and was VFX supervisor for *2012*.

3D Artist: *Let's talk about the recently released Roland Emmerich film,* 2012. *How did DN get to be called in for such a VFX-heavy film?*
Alex Wuttke: Over the years, we've developed a very strong FX pipeline. We have our own fluid and rigid body simulators as well as our own volume render, so therefore we have the ability to tackle the more onerous technical challenges that films like *2012* have. This combination of a technical and creative problem-solving track record is what has given us these kinds of opportunities.

3DA: *Which sequences were DN involved in and to what extent?*
AW: Double Negative's work on *2012* was spread across two sequences: Saint Peter's Square and Yellowstone. The work on Saint Peter's involved building and then destroying Vatican buildings, so the work included rigid body simulation, smoke and dust simulation, as well as digital crowd population of the environments. Yellowstone almost seemed to cover every kind of effects animation challenge possible, including fluid simulation, rigid body simulation, digital pyro, water simulation and destructible environments. Once we had received the original animatics and previsualisation, we began to break shots up into effects categories, while at the same time identifying the tools and extensions to tools that would be needed. Parallel to this we started developing the look of various effects, producing 2D painted concepts as a rapid medium for exploring visual ideas.

3DA: *How was the workload distributed on this?*
AW: The team was divided across the two sequences, with both 2D and 3D sequence leads for each. While the overall 2D supervisor was Matt Twyford and the CG supervisor was Gavin Graham, Vanessa Boyce was the 3D lead on Saint Peter's with Julia Reinhard the 2D lead. On the Yellowstone sequence, Phil Johnson was the 3D lead and Jelena Stojanovic the 2D lead.

3DA: *How did you create the eruptions and what proprietary tools did you employ?*
AW: For the Caldera eruption, original footage had been shot at Kamloop, Canada and the DN team generated a 3D representation of a 2D matte painting that artist Chris Kessler had created. Once built, deformation effects were created underneath it, swelling the ground up and stretching it to indicate enormous pressure building up underground. Digital pyro events were then generated to rip through the ground using a combination of Double Negative's proprietary software Squirt for the actual explosive simulations and Houdini for the destruction of the terrain as these forces push up through the ground.

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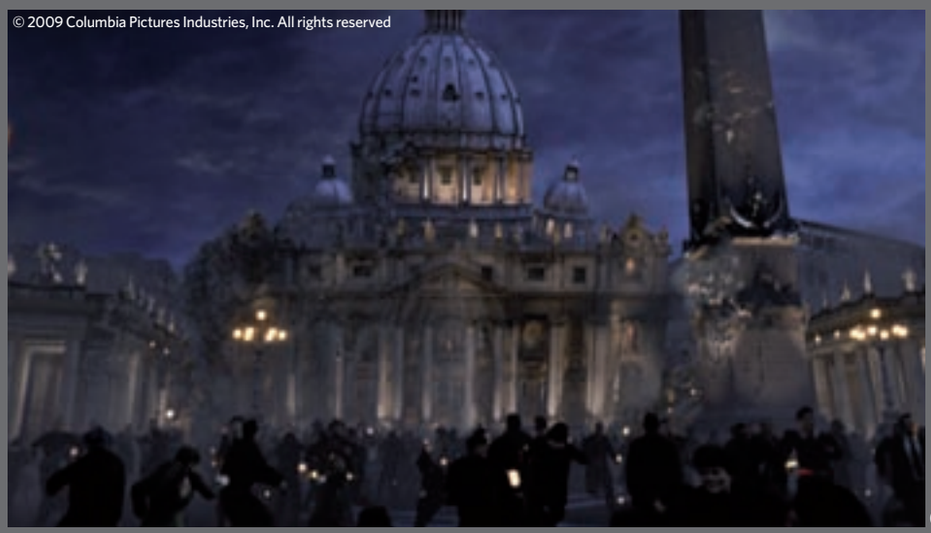
J

3DA: *In this sequence, John Cusack gets chased by a giant ash cloud. How did you create this?*
AW: The solution was to use presimulated libraries of pyroclastic ash cloud elements, which were then dressed into the shot. The individual simulated elements were generated by Double Negative's fluid dynamics expert Jason Harris, using Squirt, DN's in-house fluids solver. After much testing, he produced the ideal conditions within the simulator under which the team could produce a variety of pyroclastic flows in different shapes and sizes. The FX artists would then dress these into their shots sculpturally, creating towering walls of ash cloud that contained hundreds of these simulations, each one containing huge amounts of detail. They would then run lower-resolution simulations inside their compositions that then acted as temperature sources for fiery glows within the clouds. Everything was rendered through DNB, Double Negative's in-house volume renderer.

3DA: *The lava bombs look spectacular. How did you get them to work?*
AW: Roland Emmerich's brief for the lava bombs was disarmingly simple, that the lava bombs should vary in size from a football to that of a four-storey house. This



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K

J It starts off as a plane taking off down a runway but once DN add scascading fireballs the destruction is underway. The smoke effects were rendered in DNB, the in-house volume renderer

K The other main sequence worked on in *2012* involved St. Peter's in Vatican City. Having made some sets for *Angels & Demons*, the team went back to their plans to set about blowing it up

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meant big issues with scale, in giving the bombs the requisite mass. Due to their size and mass, on impact they would have to cause a large amount of disturbance to the terrain. There would also be a large number of these impacts in shots, so a pipeline was needed to accommodate this effect. As a result a lightweight rig was built in Maya for placement and timing approval of the bombs. The data from these rigs was then dispatched to Houdini, where all the rigid and soft body simulations of lava bombs impacting turf, soil and bedrock layers, along with all their interactions, was solved.

3DA: *But that wasn't the end of it, was it?*
AW: The director felt the biggest lava bombs weren't big enough and was thinking of something more along the lines of a chunk of forest being hurled through the sky. The earth bombs were essentially huge models of chunks of ground including bedrock and stratifications, on top of which would be a 3D forest. The ground would slowly break apart, all the trees would react to the wind force and upon impact the whole thing would further break up and the bigger pieces would break up into smaller pieces, etc. DN's Jeremy Smith and Jonathan Davies worked on the fault lines opening up around the RV. Matchmove lead Joel Prager then tracked digital lava bombs to the plate, punching into the terrain and ripping into the RV. Beyond this, a team led by Philip Johnson were also tasked with constructing an extension to a partial build of a research station shot on location, adding additional buildings, antennae and a large drilling platform at the centre of the facility.

L The volumetric clouds had a separate fire simulation in the middle which made the entire effect extremely complex and pushed the render engine to the limits.

3DA: *The other major sequence DN was responsible for was destroying Saint Peter's, which seemed to be something of a theme since you were causing havoc in Saint Peter's Square in* Angels & Demons *earlier in the year. What was involved here?*
AW: The Saint Peter's sequence was much smaller, consisting of about 18 shots, showing the interior of the Sistine Chapel cracking and giving way, then in Saint Peter's Square as the Basilica tilts up, breaks and rolls down on the praying crowd, who then try to escape from being crushed under it.

3DA: *How did you approach it?*
AW: The team started off with an accurate model of Saint Peter's Square and its environment, including the Basilica and the colonnades that surround it. The model was built to suit the needs of Double Negative's in-house dynamics engine (Dynamite), with multiple levels of detail grouped into hierarchies. Following a pass of blocking animation, in which it was essential to hit the right marks and beats for the shot, the artists animated the larger hierarchies with keyframes, so that the general break-up of the buildings happened at the right time and place in the shot.

3DA: *How did you manage to animate and manipulate the crowd figures?*
AW: The crowds were achieved by using library characters and a sprite system that had also been used earlier in the year for *Angels & Demons*. Some green screen extras were shot on set for the close-up shots, but for many the camera moves demanded the use of 3D characters, although this meant that they were utilised much closer than had originally been expected. These crowd members were animated using mocap clips processed through Endorphin.

KM: The feature film VFX industry in London is booming right now despite the recession. This is due to a combination of factors, including the exchange rate and the tax breaks. But it is also due to the fact that the VFX companies in London have all matured to the point where we can compete with the established US companies, not only on cost but also on quality.

3DA: *At Double Negative, do you find it necessary to go out and pitch for a lot of work or are heads of VFX beating a path to your door with work?*
KM: Sure, the times are good; however, marketing is still very important because we need to make sure that the projects we take on are compatible with our needs. As I said earlier, it is very important to us that we don't downsize and therefore keep all our artists gainfully employed with interesting work.

3DA: *What kind of hardware and software setup do you have at the London office?*
KM: We have a fairly standard hardware set up, using Linux workstations for the artists and Linux servers for the render farm. The key commercial software packages we use are Maya, Houdini, Shake and Pixar's RenderMan. We also have many proprietary tools developed by our strong research and development department.

3DA: *How much previsualisation work do you get involved in before shooting starts on a project? For example, do you have a lot of location-based work before shooting starts and it even gets to adding CG elements at your end?*
KM: That really depends on the projects. We do provide previsualisation as a service, which many of our UK-based clients take advantage of. However, those clients based in the States tend to use US-based previsualisation companies closer to home. We do also get involved in preproduction location work, however, again it depends on the project.

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Choosing the right 3D software

So you want a job in 3D, but which software packages do you need to learn or buy? David Crookes explains all.

3DS MAX 2010 Building a bright 3D future

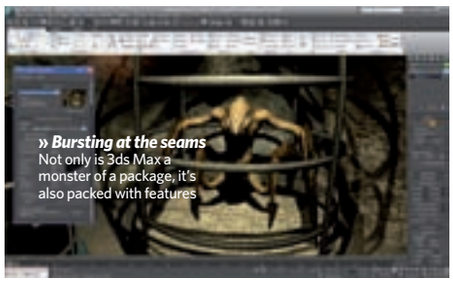
Supplier Autodesk
Price £3,050
Format PC

Good points
- Two packages cater for different uses
- Includes biped animation
- Good integration with Mudbox and Revit

Bad points
- It's PC only – sorry Mac owners!
- Gaming receiving less emphasis
- Difficult learning curve

Used for
Games, film, video, architecture

Hamburg-based Visual Distractions uses 3ds Max in its visual effects studio (scene courtesy of Visual Distractions Limited, 2009)


» *Bursting at the seams*
Not only is 3ds Max a monster of a package, it's also packed with features

When Autodesk released 3D Studio DOS in 1990, it became the first affordable animation system for the PC. Five years later, it blew the crowds away at SIGGRAPH with interactive, shaded, textured objects animating in real-time to music. Now, although it has since changed its name twice – to 3D Studio Max in 1996 and 3ds Max in 2000 – the package is more well rounded than ever before, making it an essential consideration.

Although great for games and film, two years ago Autodesk expanded on its package with the debut of 3ds Max Design 2009, a tailored 3D application for architects, designers and visualisation specialists. Containing everything you will find in 3ds Max 2009 except for the software development toolkit, Design is perfect for anyone working in manufacturing, architecture or civil engineering.

For those in the entertainment industry, 3ds Max 2009 is the one you'll want since you will certainly be making use of the software development kit. But it seems Autodesk is moving ever more towards architecture with 3ds Max, leaving gaming and film to Maya. It's no surprise, though, for 3ds Max is great for modelling and you can conceptualise, model and render even the largest of environments with ease. Then again, 3ds Max offers a rigging feature called biped, which means you don't have to create a full character skeleton from scratch and this has yet to find its way into Maya.

One thing is for sure, despite a retooled user interface, 3ds Max is not a simple package to pick up and play, although it is easier than Maya because you need less theory. It's still crying out for an entry-level package to be honest, because as the years roll by it is getting fatter and fatter and, for hobbyists, it may prove to be too much given the vast array of menu icons.

Still, many of you will welcome the wealth of features. Both packages offer a new Reveal rendering toolset, a ProMaterials material library, numerous biped enhancements and new UV editing tools. Even better, there are more than 350 new features in Autodesk 3ds Max 2010 and Autodesk 3ds Max Design 2010.

In addition to being the first animation package to integrate mental images' mental mill technology, the 2010 release of 3ds Max also includes render-like effects in the viewport display, such as soft shadowing, exposure control and ambient occlusion. There are more than 100 new Graphite modelling tools, containers, a new Material Explorer, xView mesh analyser technology, as well as enhanced support for software interoperability and pipeline integration.

Autodesk's 3ds Max is also great for rendering. Rival fast renderers can generate images useful for only basic communication, while those creating only photorealistic images can be slow. With 3ds Max, the user is offered a level of image accuracy and it can really help to speed up a project's creation time.

After Blender and Flash, 3ds Max is the third most-used computer animation software. It has a massive following and the internet is packed with tutorials (check out our cover CD, too). It's a popular choice, and it helps that it is compatible with other Autodesk tools such as AutoCAD, allowing for seamless exporting of models.

Frédéric Gooris

BELGIAN INDUSTRIAL DESIGNER Frédéric Gooris has worked for a number of tasty clients, including Ferrero and Nestlé. But it is through working with Shanghai-based manufacturer DK City on a diverse range of products from wheelchairs to furniture that he has seen the full power of 3ds Max. DK City is a major supplier for IKEA and Gooris produced a line of chairs called Yasmine, as he says: "We prefer 3ds Max due to the combination of speed and simplicity for the creation of the renders. The default render engine of 3ds Max is like a powerful pencil," said Gooris. "If you know how to draw, you can create great images that give you the perfect feel of the product without requiring a supercomputer."

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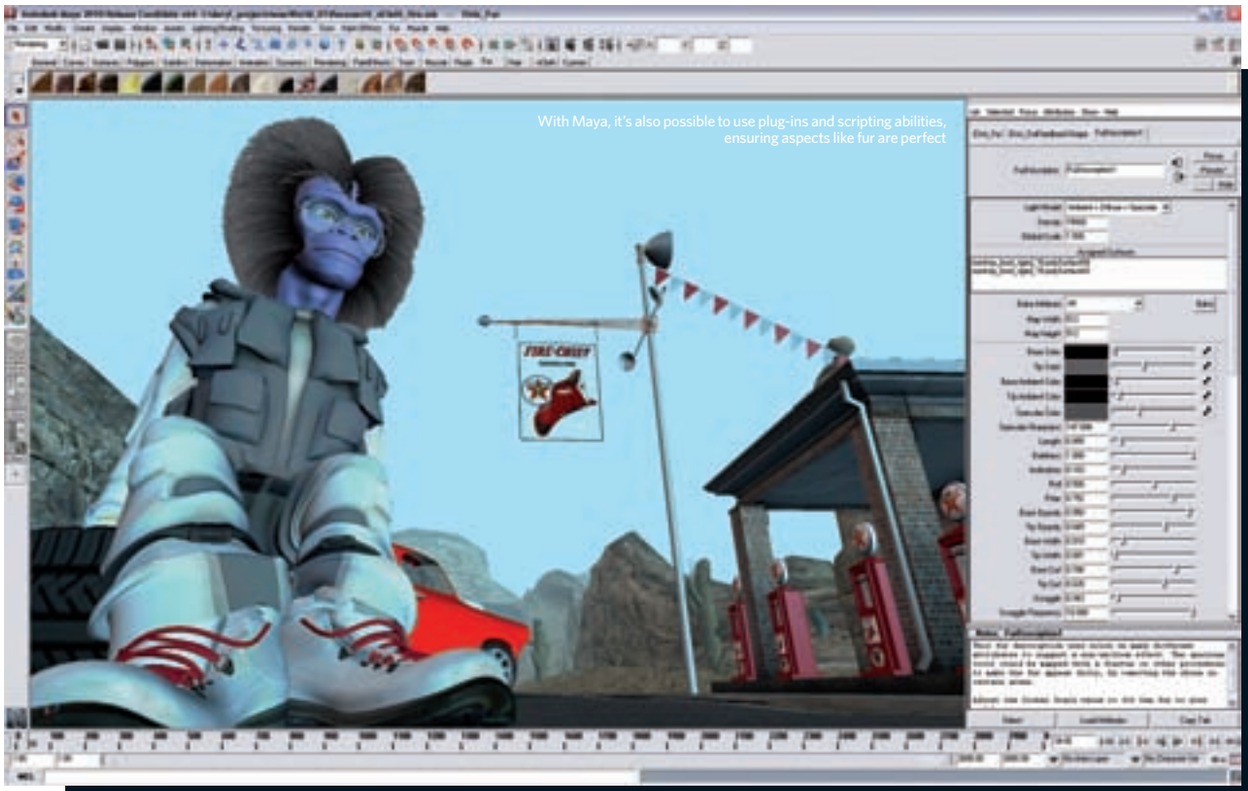

With Maya, it's also possible to use plug-ins and scripting abilities, ensuring aspects like fur are perfect

Supplier Autodesk
Maya 2010
Price £3,050
Format PC

Good points
⊕ It's an industry-standard package
⊕ Brilliant modelling and UV mapping
⊕ Support for multiprocessor computers

Bad points
⊖ It's an expensive package
⊖ There's a steep learning curve
⊖ You don't get a biped component as in 3ds Max

Used for
Film, games, television, manufacturing

MAYA

A package writing its own script

Maya made its debut back in 1998, first for the IRIX platform and then for Windows. And every year since then it has got better and better (by and large). It has been owned by Autodesk since 2006 and it is now up to version 2010.

Maya has a reputation for being the top animation tool and one of the most powerful 3D and visual effects packages in today's highly competitive market. And while some believed that Autodesk was going to integrate Maya into 3ds Max, it hasn't done so and instead it has continued to produce a stonking package in its own right.

The latest iteration unifies Maya Unlimited and Maya Complete (the two versions were created in 1999) and it also includes Maya Composite (an HDR compositing tool based on Autodesk Toxik technology), Matchmover advanced matchmoving technology, Backburner network render queue manager as well as five mental ray batch nodes.

Maya continues to have wide-reaching flexibility, letting you easily manipulate individual vertices for greater control. The texturing tools and lighting settings are strong and it is possible to integrate in-house tools into the package or customise it fully, which is why it has proved so popular in a number of industries, not least the highly demanding world of movies.

There is a software development kit and the integrated node-based 3D software suite is now more efficient, handling animation, modelling, rendering, compositing and tracking with ease. The Render Proxy and Maya Assets allow for great management of even the most complex and large scenes.

Maya is aimed at the entertainment industry, which is why it is so popular for special effects and characters for film, television and games. It offers features that are not available in 3ds Max, such as motion capturing, animation layering and character rigging. With the ability to draw freehand and NURBS modelling (for liquid and gas effects), it's clear where Maya's strengths lie.

The advanced simulation tools – which include Maya nCloth, Maya nParticles, Maya Hair, Maya Fur, Maya Nucleus Unified Simulation Framework and Maya Fluid Effects – build on solid texturing and animation tools, brush-based 3D technology, toon shading and an integrated stereoscopic workflow.

Maya is not perfect, though. It lacks a biped feature so you would have to build skeletal structures from the ground up. This feature is, however, included in 3ds Max so Maya therefore lends itself slightly better for film and television than it does games. Indeed, every film that has won an Oscar since 2001 for Best Visual Effects made use of Maya. The effects in *The Curious Case of Benjamin Button* are an example of its power.

But the greatest feature of Maya is that it is an industry standard. The price will put many people off, particularly students and hobbyists, but those who want to pursue a professional 3D career would do far worse than becoming familiar with Maya. It's fair to say it's not an easy package to pick up for beginners, however, so some may want to try something cheaper first.

> "With its wide-reaching flexibility, Maya's always been a terrific package for us"
>
> **Laurent Hugueniot** – CG supervisor, Framestore

Framestore

LONDON-BASED FRAMESTORE was one of three companies that produced visual work for the hit movie *The Golden Compass*. Over 15 months, 150 of the 200-strong team used Maya to model, rig and skin the two rival armoured polar bears, Iorek Byrnison and Ragnar Sturlusson. 266 shots were completed in total. Maya was used to paint deformations onto the geometry, solving any intersection issues encountered during modelling. Fur was created in-house using Maya plug-ins and the team made extensive use of Maya's scripting abilities to ensure that the bears' fur, skin and fat all moved convincingly. "Maya's embedded language (MEL) and open architecture proved invaluable," says Laurent Hugueniot, Framestore's CG supervisor. "They allowed us to implement any idea we had with the minimum of effort."

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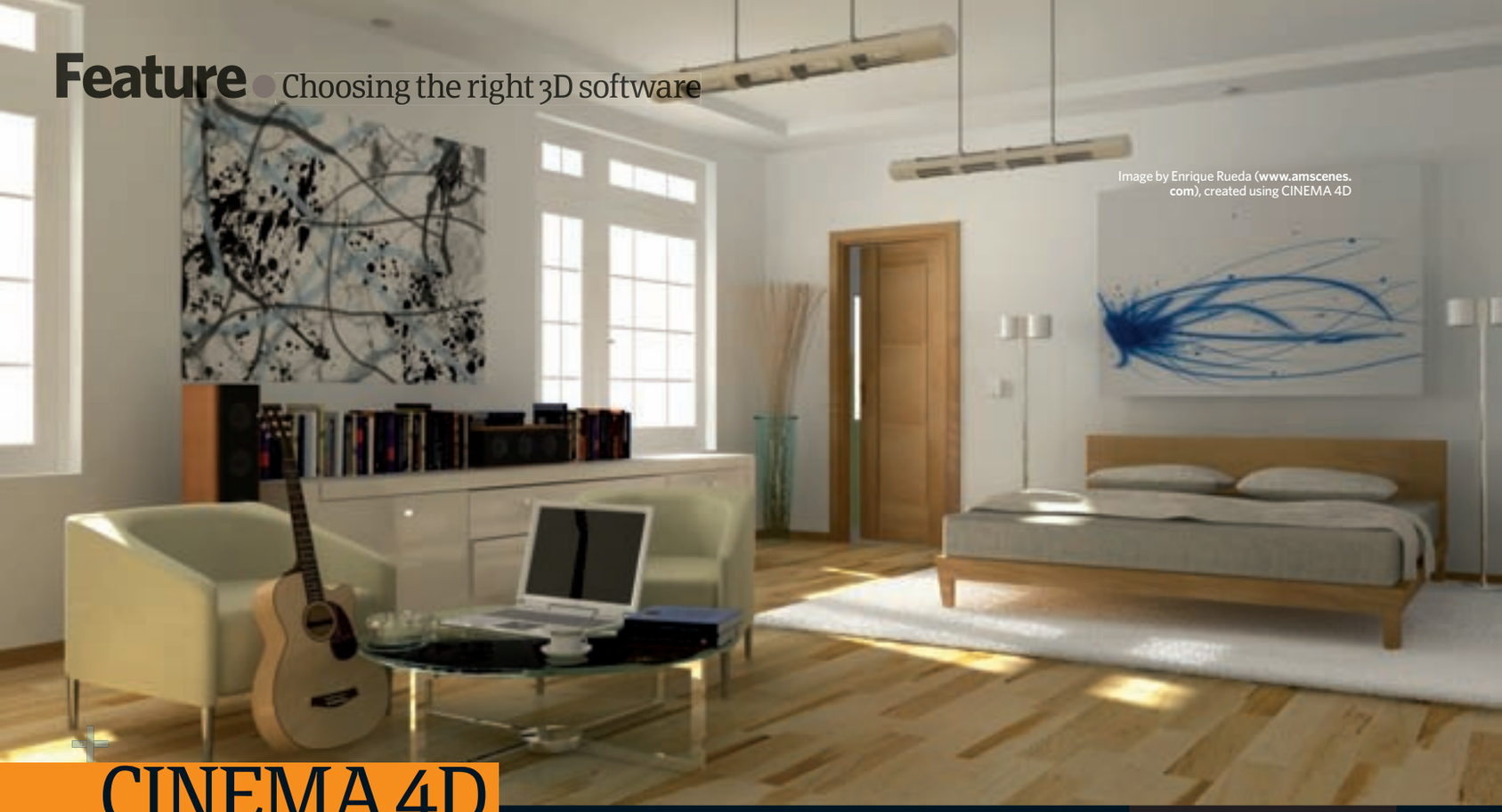

Image by Enrique Rueda (**www.amscenes.com**), created using CINEMA 4D

CINEMA 4D

Lights, camera, action – it's CINEMA 4D

CINEMA 4D made its debut in 1993 on the Amiga and it was released on the Mac and PC three years later. Since then, it has grown to become one of the most respected packages in professional use today, its power and ease of use making it popular in many markets.

It's an ideal 3D tool for a beginner but with great support for Adobe After Effects, fast rendering and stability, CINEMA 4D is great for pros as well. CINEMA 4D is at its best when used in broadcast. And as if to further its claim in this territory, it also comes with BodyPaint 3D fully integrated.

BodyPaint 3D is MAXON's 3D advanced texture and painting application that began as a standalone version in 2000 and became part of the CINEMA 4D package in 2006 (although still available as a standalone). It's an industry-leading tool and it has been used to texture characters and objects in smash-hit films such as *Spider-Man 3*, *The Incredible Hulk* and *The Golden Compass*.

But it is just one of a number of modules available for CINEMA 4D, others including MOCCA for character animation and cloth simulation, HAIR to simulate hair as well as other attributes such as fur, and Sketch & Toon for cel shading and cartoons. There is also MoGraph, a new version of which is included in the latest release, 11.5, unveiled this year.

Name CINEMA 4D Release 11.5
Supplier MAXON
Price From £619
Format PC/Mac/Linux

Good points
- ⊕ Integrated BodyPaint 3D
- ⊕ Excellent motion graphics and instancing tools
- ⊕ Fast and reliable renderer

Bad points
- ⊖ Buggy texture-baking tool
- ⊖ The tool for depth of field needs a serious revamp
- ⊖ Old dynamics module is rusty and almost useless

Used for
Advertising, architecture, broadcast, engineering, film, games, illustration, medical, science

The MoGraph 2 module is an innovative tool that makes it easier to create many motion graphics effects. The most important new feature of MoGraph 2 is the dynamics system specifically for motion graphics artists based on the Bullet physics engine.

Version 11.5 of CINEMA 4D also includes bucket rendering, improved multicore performance, support for FBX 2010.0 and improved support for Adobe After Effects and Apple Motion. With this much power behind it, it's no surprise it's used for movies such as *The Polar Express* and *Beowulf*.

It is used for other purposes, however, from science to architecture. Games developers make use of CINEMA 4D to produce game environments, producing 3D by modelling objects out of multiple surfaces made up of groups of vertices.

What you pay for CINEMA 4D depends on what you will need. For your £619 plus VAT, you get the package itself. The XL Bundle costs £1,549 and for that you receive the same tools as well as NET Render, PyroCluster, Advanced Render, MOCCA and Thinking Particles. With the Studio Bundle at £2,699, you receive Dynamics, MoGraph 2 and Sketch & Toon.

Benedict Campbell

FOR MORE THAN 20 years Benedict Campbell has worked as a photographer and digital artist, and he has produced images for some of the world's top brands, from Ford, Dulux and Vauxhall to Andrex, Chevrolet and Ted Baker.

Benedict has a reputation for combining his skills as a photographer and digital illustrator to create photorealistic images. "I first got into 3D 12 years ago," he says. "I started using a program called Bryce but I later turned to CINEMA 4D after meeting with a company called MAXON at a show. The package was much simpler back then and it enabled me to learn. CINEMA 4D is extremely powerful and it enables me to get some great results."

Image by Enrique Rueda (**www.amscenes.com**), created using CINEMA 4D

> "Using CINEMA 4D, we are now able to output complex shots with a speed I had never seen previously in my experience"
>
> **Ivo Horvat** – matte painting supervisor for the film *The Polar Express*

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MODO 401

Top modeller gets more animated

Modo began as a modelling software package, but as time has gone on it has morphed into something more. It started life five years ago as modo 101, allowing for subdivision surface and polygon modelling with UV editing. In 2006 rendering and 3D painting was added, a year later 301 provided sculpting, animation and network rendering, and in June this year modo 401 was released with a host of improvements.

With its 3D sculpting and painting abilities, advanced modelling and cool user-friendly rendering, modo is a nice rounded package. Lighting your scenes is simple, giving you more time to work on other aspects of your art, and the latest version's Preview Renderer offers fast updates, delivering an up-to-date view of the rendered image as you work. It means you will know what the result will be when you come to perform a final render.

modo's paint system allows you to start with a blank canvas and paint textures and ink onto your 3D models with ease. You can overlay a texture plain and paint through it in 3D space in whatever direction you like, controlling the opacity of the ink or texture.

modo 401 also allows for volumetric effects and blurry refraction, while a new shadow catcher feature allows shadows to be cast onto background images.

Presets speed up the creation of 3D content by having ready-made material prepared for you, and instance replicators provide a way to add intense detail, for example, water droplets on a windscreen.

There is a solid level of consistency across modo. For example, sculpting is not a separate application to modo, it is built-in and works right alongside traditional modelling tools. If you know how to paint in modo, you also know how to sculpt because they use the same engine. And if you know how to sculpt, then you already know how to brush the hair guides that control fur, a technique allowing users to create surfaces that sprout fur or other fibres.

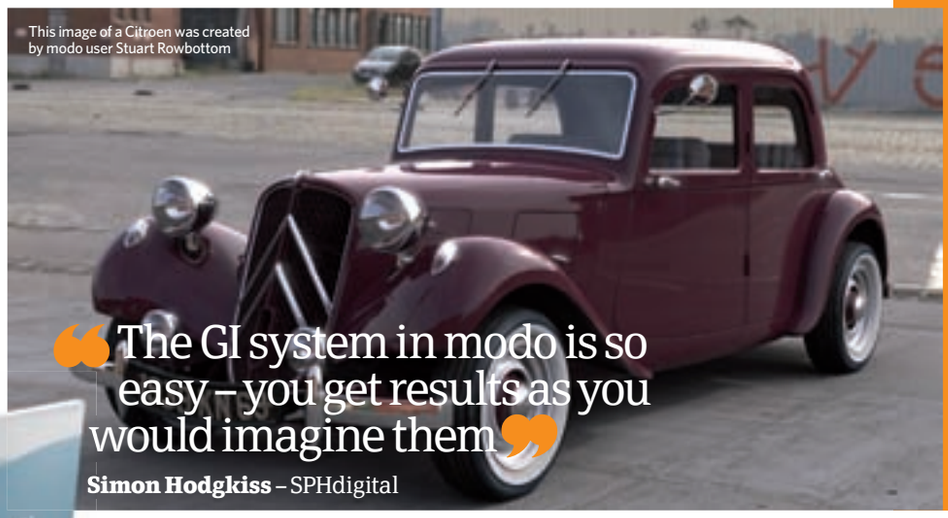
But some things let it down. The package lacks a skinning system and bone tools for character setup, and this puts it at a disadvantage when compared to Autodesk's tools. It doesn't have a node-based shading system either so it's harder on the eye.

But modo's network rendering system is worth a look, allowing you to collect CPUs on your network and render frames with the help of all your machines – great for heavy scenes that need a lot of computation.

modo has a solid community with an active user form at www.luxology.com, and it's used by developers, trainers and artists. The publisher has also added an image gallery to its website and it's worth checking out as an example of what can be achieved.

SPHdigital

SIMON HODGKISS, THE director and producer of SPHdigital in Northampton, uses modo 401 as his primary rendering software. He used it to render the pilot of *The Adventures of Raz and Benny*, and with the package being a great modeller and texture painting system, he has found himself using it for all of the animation's characters. "I have found modo a very user-friendly rendering system," he says. "Not only is it fast but it is very easy to light scenes and get the right look with minimum fuss." He says it's cost-effective, too. "modo allows me to produce stunning work but also render on up to 50 machines with just one seat! This will have a dramatic effect on the IT budget for the series."


This image of a Citroen was created by modo user Stuart Rowbottom

> "The GI system in modo is so easy – you get results as you would imagine them"
>
> **Simon Hodgkiss** – SPHdigital

»Pole position modo has been in the modelling driving seat for a while now

Name modo 401
Supplier Luxology LLC
Price $995
Format PC/Mac

Good points
- Modelling is spot-on and works well with render farms
- Rendering is fast and lighting scenes is easy
- The preset library is great

Bad points
- Lacks a skinning system and bone tools for characters
- Doesn't have a node-based shader system
- Animation is not yet perfect

Used for
Design, print/advertising, game development, film and broadcast

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Softimage gives you the capability to produce some stunning visuals

SOFTIMAGE

It's certainly no soft option

Name Autodesk Softimage 2010
Supplier Autodesk
Price £1,725
Format PC

Good points
⊕ Face Robot is now integrated
⊕ It's used extensively in gaming
⊕ Improved interoperability with Maya and 3ds Max

Bad points
⊖ Steep learning curve
⊖ PC only again, we're afraid
⊖ No entry-level system for hobbyists

Used for
Visual effects, games

Autodesk is quite some force when it comes to 3D nowadays. In 2008 it acquired the assets of Softimage from Avid Technology, with the latter having pulled out of the 3D animation market. Renamed Autodesk Softimage, the software now boasts some killer apps, among them the Face Robot toolset and a Scene Debugger.

The package has come a long way since Softimage released Softimage XSI v1.0 as the successor to Softimage 3D in 2000. This high-end 3D graphics app is still a staple of major graphics studios and it is aimed at producing environments, objects and characters for the videogame and film industries.

It is also used in advertising and has been used in commercials for Kellogg's, Coca-Cola and BMW. It was also used on the Activision videogame *Quantum of Solace*.

Softimage 2010 is the latest release. As with the other two Autodesk 3D packages it's an expensive beast, but for the money you get a powerful piece of kit. You do need to spend some time getting to grips with the interface, though, but the results are worth it and many believe it to be more approachable than 3ds Max and Maya. Final rendered images look wonderful and, once you're familiar with the package, you will soon be using the character primitives and ready-made rigs to knock up characters in no time.

Integration of Face Robot – facial animation software for the simple rigging and animating of 3D faces – is welcome and it's no longer available as a standalone product. You're able to use the package to create lifelike facial animation and then concentrate on expression and emotion.

Softimage 2010 also features an expanded and customisable interactive creative environment (ICE) system. There is improved interoperability with Maya and 3ds Max, too. Softimage makes it easy to produce a nondestructive workflow, letting you build items once and transferring attributes such as UV, weight maps and textures from one mesh to another.

One such application is the Generalised Attribute Transfer Operator or GATOR, which lets you form a base from which to start if you have a huge number of assets that require reskinning. Another good feature is GigaCore III, which delivers superior data handling and improves loading, saving and import speeds.

Strong on modelling and animation, if you want to get ahead in games production then check this package out.

> "We can talk to other applications, including 3ds Max , ZBrush and Photoshop, which has given us an incredibly powerful framework"
> **Ian Lovett** – technical art director

Lionhead Studios

FOLLOWING THE SUCCESS of *Fable* it was odds on that Lionhead would create a sequel, and in order to create a game befitting of the Xbox 360, a rewriting of its tools was in order. Lionhead decided to use Softimage. "It has excellent modelling tools as well as extremely flexible animation," says Ian Lovett, technical art director. "It also allows our artists to easily write bespoke tools. This was great for helping us to create a customised pipeline quickly and efficiently. The tool is easy to pick up, and new artists joining the team can get up to speed with the software in just a few weeks."

Colin Hodges, senior product specialist at Softimage Special Projects, shows the functionality of Face Robot, the first software product dedicated to facial animation

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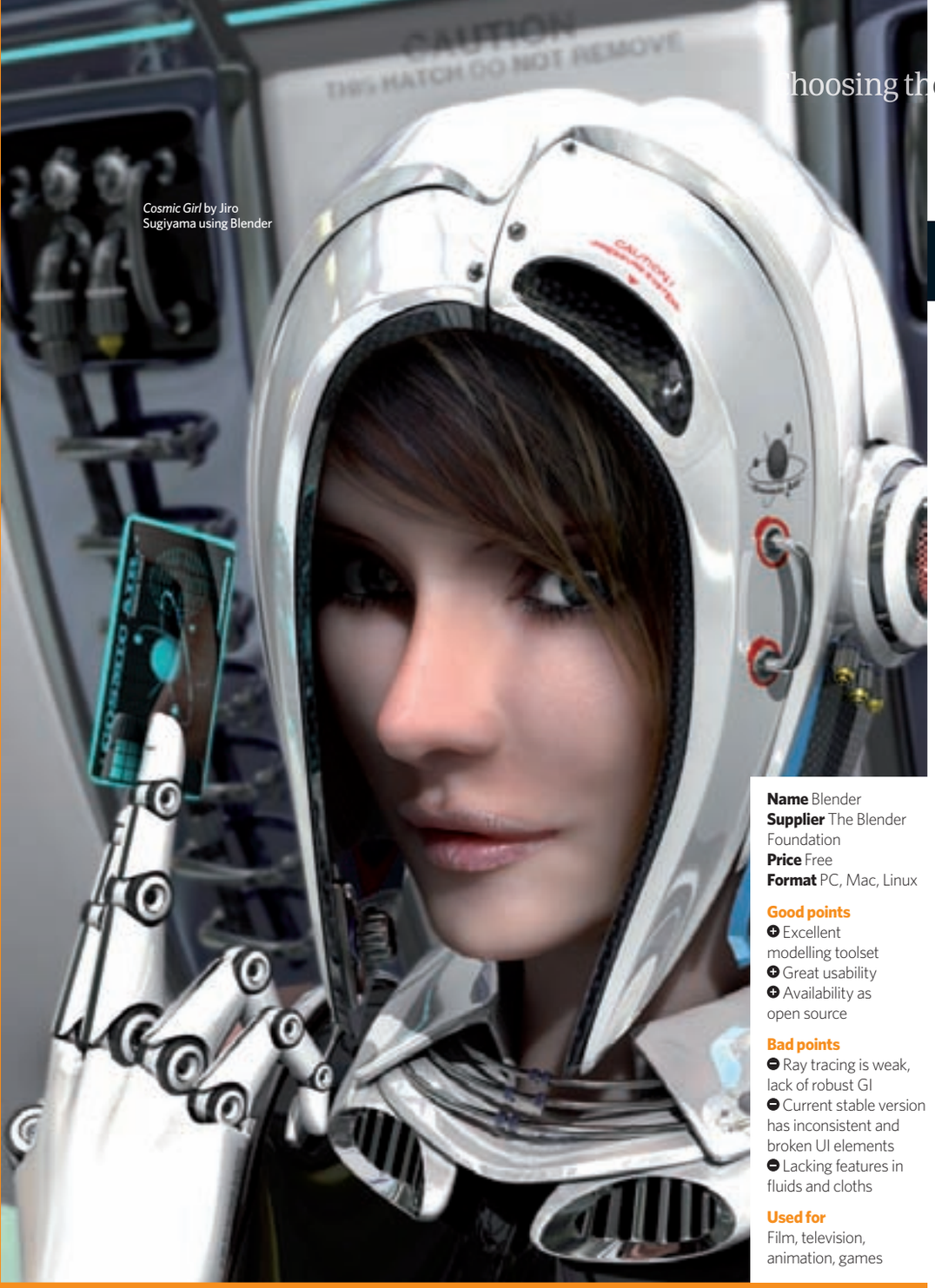

Cosmic Girl by Jiro Sugiyama using Blender

BLENDER

Cheap but certainly not nasty

Name Blender
Supplier The Blender Foundation
Price Free
Format PC, Mac, Linux

Good points
- Excellent modelling toolset
- Great usability
- Availability as open source

Bad points
- Ray tracing is weak, lack of robust GI
- Current stable version has inconsistent and broken UI elements
- Lacking features in fluids and cloths

Used for
Film, television, animation, games

If money is severely constrained, then you're unlikely to want to splash out for Maya or Max. Step forward Blender, a free, open source, feature-laden package that is hugely popular among small developers and students.

This all-in-one 3D modelling and animation suite originally started as a commercial product. And it's fair to say that it's developed a reputation for being difficult to use. Some users still remember their first encounter with some anxiety.

Much of this was due to the controls being hidden in mouse gestures and keyboard shortcuts, but vast improvements have since been made to the user interface and now many of the functions are available via the menus or toolboxes.

Artists have access to a wide variety of 3D objects, including NURBS, metaballs, vector fonts, Bezier curves and polygons. Modelling is a breeze even though some tools are missing, and it makes light work of animations. And with strong rendering and postproduction features as well, it's little wonder that Blender is being used to produce entire animated movies, giving you the power of Pixar for no cost at all.

Blender is also a great tool for game art development, especially prerendered art. With the recent development regarding Normal maps, viewport visualisations and Blender's excellent UV mapping – where it really does lead the field – it is proving an excellent tool for low-polygon 3D modelling as well.

You can import tools written in the Python script, you can edit basic nonlinear video and audio (although it doesn't work with MP3 files) and you can make use of the Game Engine, which is great for casual games (less so for more advanced work). It also has collision detection and dynamics simulation.

> "You will create the art, not the package, so learn the features and understand their limitations before diving in"
>
> **Gaurav Nawani** – lead artist, IronCode Software

Some people don't like the Blender user interface but staunch users say it grows on you

There are still some annoyances with Blender's user interface, but it's an organic program with a great user base that ensures refinements continue to be made. It takes up very little space on your computer and the package certainly stands up to the paid-for software in this roundup.

So don't get taken aback by the fact that it looks different. Give it time, and if your idea of working is in sync with Blender's then it will grow on you quickly. You will have to fall back on the community for help from time to time, but the program's documentation is getting better.

IronCode Software

INDIA-BASED IRONCODE Software makes exclusive use of Blender for its range of casual games, and co-founder Gaurav Nawani believes it is particular strong when it comes to modelling, as he says: "It also has an excellent community to fall back on for everything from problems to knowledge sharing to developers."

Almost all of the art that can be seen in IronCode's games is modelled, textured and rendered in 3D. "The key to mastering Blender is to first understand the user interface. Blender's UI is tricky but very consistent – one method to interact in edit mode will also work logically in, say, texture mode. So get a grip on the keyboard shortcuts. Once you get the hang of it, it becomes a very productive tool."

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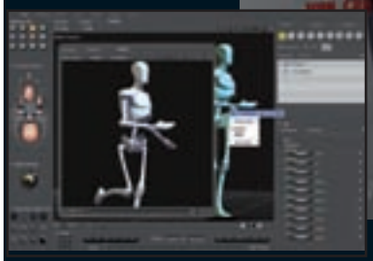
POSER 8

Time to strike a pose

Render of Jean Grey by Poser user mattymanx

With Poser you have characters ready to work with



Name Poser 8
Supplier Smith Micro Software
Price £175
Format PC and Mac

Good points
⊕ Global Illumination system is great
⊕ It comes with lots of bundled content
⊕ The interface makes it easier for newcomers

Bad points
⊖ It costs more than DAZ Studio
⊖ The supplied figures aren't great
⊖ We found it does crash from time to time

Used for
Digital art, illustration, concept art, forensics, graphic design, web graphics

Poser 8, like DAZ, enables you to create art and animation using 3D characters. The package gives you ready-to-pose human and animal figures, props, 3D scene elements and textures, and the idea is that you add extras such as clothes and hair to produce characters that you can export into other 3D applications.

The application has been around for 12 years and it has proved incredibly popular in that time. It is used by professionals and hobbyists alike, and while few tend to utilise Poser's animation capabilities, they are nevertheless powerful and professional. For example, Poser's animation has been used on the Discovery Channel to explain the movements of animals and humans. More commonly, though, you tend to see Poser used in comics and indeed as standalone individual images.

Poser 8 has replaced the previous quirky user interface with a more conventional one and it now has a much-needed Search tab. The package comes complete with 4GB of bundled content and you are able to purchase add-ons via Poser's online store. Recently, Poser has been lagging behind DAZ but it does have many strengths, not least in its solid rendering capabilities.

We especially like the Global Illumination system, which bounces light and colour from object to object and gives an appearance of a photographic image. It's a good choice for hobbyists and graphic novel creators.

> "Poser 8 is extremely, almost dizzyingly full-featured and very library-driven"
>
> **Douglas Figueredo** – fledgling artist, New York

aniMate Lite takes a 'building block' approach to animation

Image created by joelegecko using Environment lighting with Ambient Occlusion and Directional Shadows, with ray-traced reflections in DAZ Studio 3

DAZ STUDIO 3

A dazzling piece of software

Name DAZ Studio
Supplier DAZ Productions, Inc.
Price Free download (also available is DAZ Studio Advanced for $149.95)
Format PC and Mac

Good points
⊕ Fairly easy to use
⊕ Ray tracing and camera controls
⊕ Can import Poser content

Bad points
⊖ Rendering requires practice
⊖ May need plug-ins
⊖ Content management is a mess

Used for
Digital art, illustration, concept art, forensics, graphic design, web graphics

There are two version of DAZ Studio: one free, one advanced for $149. What this obviously means is that you can take a no-obligation plunge and try the software out for size. It's then that you realise this is not like most other 3D software, because with DAZ you manipulate existing models and figures rather than create them from the ground up.

It's a rival to Poser in every sense (you can import Poser content) and the package means that you don't have to resort to getting your hands dirty with high-end 3D software. The free package is relatively cut down, however, it grows with your needs. You can add an array of commercial plug-ins as, when and if you require them.

It is now possible to animate screens. In 2008, the plug-in aniMate was introduced and, if you don't want to pay, there's a Lite version available. Off-the-shelf animations can be purchased to save time, too.

Those who decide to buy the advanced software will gain greater control over their renders. You'll be able to manipulate various aspects of your scene and you will also be able to blend parts of two figures together using the Figure Mixer. Depending on your experience, however, the free version may well suffice.

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LIGHTWAVE 09

If it's good enough for *The Matrix*...

Name LightWave 3D
Supplier NewTek
Price £599
Format PC and Mac

Good points
⊕ It's a flexible package
⊕ Many third-party tools exist
⊕ Has unlimited farm capabilities

Bad points
⊖ The learning curve is steep
⊖ You need to plug a dongle into your USB port
⊖ Not as good as some rivals for organic movement and rigging/manipulation

Used for
Television, film, architectural visualisation, games, print, online

Here's a fact – more Emmy Awards have gone to shows using LightWave than any other 3D app. And Vista was launched in the UK with the assistance of LightWave, too.

But then this all-in-one CGI solution has been around for a while. The story of LightWave began in 1988 when Videoscape and Aegis's Modeler were released for the Amiga. When NewTek wanted to incorporate them into its video-editing suite, Video Toaster, the two elements combined to become known as LightWave 3D and it was released in 1990.

The program was locked into the Video Toaster until 1994 and today it is essentially two separate programs, Modeler and Layout, each performing specific tasks and neither being particularly easy to get into as a newcomer. LightWave has been used to create after effects for *Babylon 5* and *The Matrix Reloaded*. Put the two together and you can see how far this baby has come – the graft you need to put into learning it is worth your while.

If you're after pro modelling, rendering and animation tools, then this is it. It can handle character animation with ease and it has advanced APS tools for those special intricate effects. On the downside, lighting, reviewing and rendering could be developed better for linear or non-sRGB productions.

A LightWave artist is, more often than not, a strong generalist

> "It's handy, compact, easy and it solves problems in a very straightforward fashion"
>
> **Chris Zapara** – CG supervisor, Zoic Studios

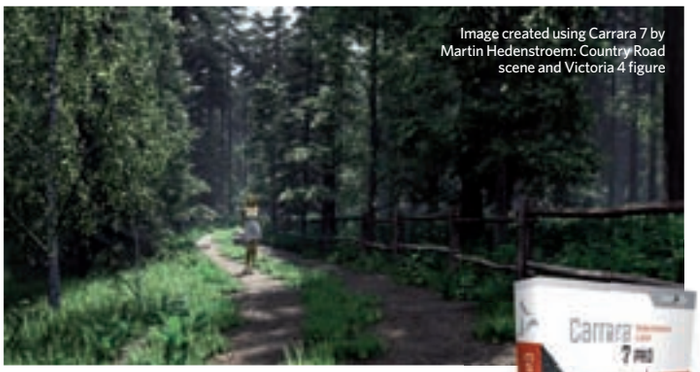

Image created using Carrara 7 by Martin Hedenstroem: Country Road scene and Victoria 4 figure

CARRARA 7

Get carried away with Carrara

Name Carrara
Supplier DAZ Productions, Inc
Price Carrara 7 - USD $249
Carrara 7 Pro - USD $549
Format PC and Mac

Good points
⊕ It's intuitive
⊕ The render engine is fast
⊕ Animation is powerful

Bad points
⊖ Needs lots of memory
⊖ There's no 64-bit version
⊖ Some features seem rushed

Used for
3D modelling, animation, rendering, 3D terrain and sky simulation, digital art, illustration, concept art, forensics, graphic design, web graphics

If you're after a low-cost entry into 3D software, then Carrara 7 is definitely worth a look. Its history dates back to 1989 when the developer Ray Dream Inc produced a package for the Apple Mac. Over time it became available for the PC as well, and while it is not as powerful as Maya, 3ds Max or even Blender, it has a great learning curve and it offers more than just traditional modelling and animation features.

Since many of the 3D software heavyweights began life as unique packages for particular movie studios, they have been geared up for a professional market from the start, where power was more important than consumer accessibility. That's not the case with Carrara and it's a more rounded product as a result.

So it's perfect for introducing yourself to 3D if you're just thinking of starting. As an example of the simpler interface, a tabbed approach lets you concentrate on modelling, texturing, animation and rendering. Carrara accepts a range of image formats and it is also compatible with DAZ and Poser-format 3D figures.

An interesting feature that appears in the latest version of Carrara is 3D Paint. It allows textures to be selected, edited and painted directly onto an object. It's possible to set up custom brush settings or use those provided. There's a default paintbrush, an airbrush, an image stamper and the Line tool.

Where Carrara could come into its own is its use for creating rough concepts, using software such as Photoshop, After Effects and Premiere to modify and assemble your renders, although the majority of people do produce still or animated art with the product.

Overall, Carrara 7 has a wide range of uses and it will help you understand the theory of 3D creation in a more accessible way than the big guns in these pages. It's a cheap enough price for you to be able to dabble and it certainly suits amateurs and students, although professionals will find some use in it too, given that it can increase your workflow efficiency.

The Eye of Solomon Productions

WHEN MICHAEL SOLOMON needed to learn 3D graphics, he turned to Carrara for his work with his company, The Eye of Solomon Productions. Starting his career using hand-illustration skills, he is now a 3D animator. "I design 3D characters and environments to complement my client's graphic identity or illustrate a product," he says. "I use Carrara to create and animate scenes, virtual sets, characters, 3D logos and alpha channel assets for video compositing."

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Duncan Evans talks to Ben Bancroft, managing director of Arcmedia Ltd about visualising yachts, buildings and shoes

Across the architectural divide

Company Arc
Founded 2002
Company website www.arc-media.co.uk
Country England
Expertise Technical visualisation
Client list Princess Yachts International plc
Weston Williamson Architects
ADP Architects
Hugh Broughton Architects
Hodder + Partners
Eric Wright Group
Devonport Yachts
Ypres Rose Developments Ltd
EHS Brann
Software used 3ds Max 2009, V-Ray, Adobe Photoshop, Final Cut Studio

> "We work on the core principles of attention to detail, good communication, flexibility and always delivering on your promises"

Ben Bancroft is the co-owner of Arcmedia

Ben Bancroft is co-owner of Arcmedia, which he founded in 2002 before being joined by his business partner Chris Jacks in 2005. Bancroft is responsible for business development and strategy along with marketing and sales, while Jacks handles the technical and operational side, ensuring they consistently deliver a high-quality product. Arcmedia is predominately based in the architectural sector providing CGI, photomontage, visually verified montage, animation and marketing films for planning, marketing and communication. However, the company has always had a percentage of business from the advertising and technical sectors, and its visualisation work for Princess Yachts has become a more significant element, something Bancroft is keen to develop further.

3D Artist: *Is there a particular style or philosophy that you bring to your projects?*
Ben Bancroft: Our philosophy is to create compelling imagery that will communicate, inform, market and sell our clients' products or services effectively. We work on the core principles of attention to detail, good communication, flexibility and always delivering on your promises.

3DA: *Who are, or have been, some of your main clients?*
BB: The vast majority of our work comes from repeat business and recommendation, which is something we're very proud of. Our clients include Eric Wright Group, ADP, Hodder + Partners, Weston Williamson Architects, Princess Yachts International plc, Hugh Broughton Architects, Kensington Developments, MPSL Planning & Design and Ypres Rose Developments.

3DA: *Where are you based and do you have other offices around the country or world? If so, what function do they have?*
BB: We're based in the Northwest of England in the market town of Poulton-le-Fylde in Lancashire. We have a brand new, purpose-built studio on the top floor of New Media House, a development that we built ourselves and now let out to two other local businesses.

3DA: *What software tools do you regularly employ and why?*
BB: We use 3ds Max 2009 and V-Ray for all our 3D work, along with Adobe Photoshop for postproduction. We use Final Cut Studio for editing, compositing and colour grading on our animation and film work.

3DA: *How many people typically work on a project, either in-house or externally?*
BB: Individual artists will look after smaller projects that include one or two images. Teams of two or three artists look after larger projects with multiple images, animation or film elements. All our production work is completed in-house where possible, but

Ⓐ

Ⓐ Interior visual of the saloon in the Princess 72MY

Ⓑ **Client:** Hampton Brook **Architect:** PHP Architects Marketing image for the Pinnacle MK, office development, Mn Keynes. Autodesk chose it for the box cover of AutoCAD Revit Architecture Visualization Suite 2010

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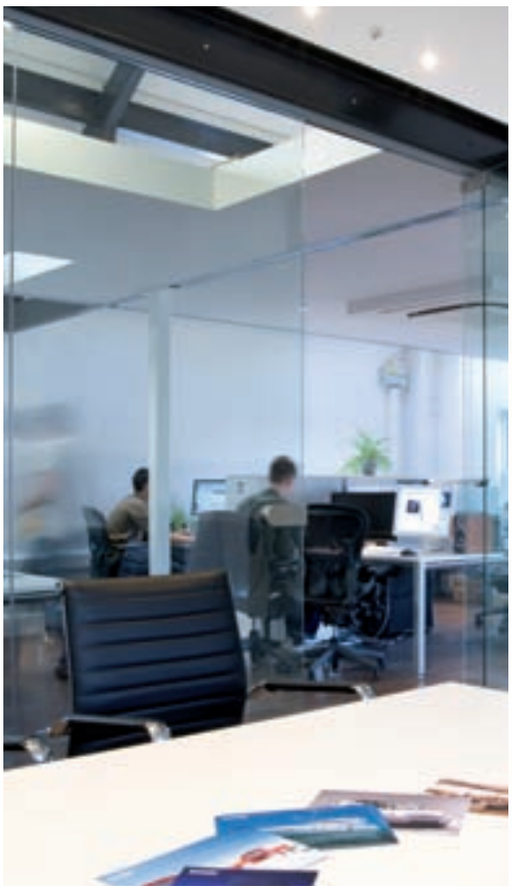

C Shot of the Arc studio in Poulton-le-Fylde

F

D **Client:** Bennett Property **Architect:** Hodder + Partners
Planning and marketing image for a mixed use development in Manchester city centre

E A collection of paint pots with coloured lids except for the first one which is open showing that the yellow paint has been used

G

we have a good network of freelance artists who work remotely or in-house when we need to boost production capacity.

3DA: *Can you give us some idea of the actual production pipeline for producing an image or set of images for a client?*
BB: Once we've agreed the scope of work with the client, we collate the required information to produce the imagery. This will be a combination of CAD drawings or data, reference photography and material samples. From this we prepare a detailed 3D model in 3ds Max and create a series of greyscale model drafts for client approval. We'll also begin to develop the image compositions or camera matching for photomontage images. Once the model has been approved, we start developing the lighting and apply the materials and surface finishes. Full-colour draft images are issued for approval, and any adjustments are made before full-resolution output and postproduction. Final artwork is delivered via CD/DVD or FTP on tight timescales.

3DA: *You've produced high-res images of new yachts for Princess Yachts. How did you get involved in this? Were pitches invited or did you have the inside track?*
BB: We were invited to a three-way pitch by Princess Yachts' creative agency DNA Advertising in 2006 after it had reviewed our website. After submitting some additional sample work and attending an interview with DNA and Princess Yachts, we were commissioned to produce a series of six images (four interiors, two exteriors) of the V45 and P58 yachts ready for launch at the next boat show. This was a significant win for Arc, and the start of an ongoing relationship with Princess Yachts International plc.

3DA: *What was involved with creating the models?*
BB: 3D CAD data of the yacht exteriors was supplied by the design team at Princess Yachts. This was imported and cleaned up in 3ds Max. Any missing details from the exteriors were built from scratch from 2D CAD drawings to complete the shell. The interiors were then built from 2D plans and sections to fit in the imported shell. The interior models are extremely accurate, with specific chamfers and grain directions applied to the fitted units.

3DA: *You created the marketing imagery for Kensington Developments' Villa Collection at Lytham Quays. Tell us more*
BB: Arc was approached by Kensington Developments to create the marketing imagery for its latest luxury development in Lytham, Lancashire. The Villa Collection is an executive development offering the ultimate in luxury living and high-quality craftsmanship. Arc pitched the concept of a marketing film showcasing each design, the unique waterfront location, incredible views and wealth of amenities in the area. This was well received by Kensington and resulted in

Key Project

Hillside, St. George's Hill Estate – Ypres Rose Developments

Hillside at St. George's Hill Estate, Weybridge, Surrey is a 15,000 square foot new build residence currently in construction. We were approached by Ypres to produce a walkthrough animation to support its marketing and sale, after a recommendation from another client. Having discussed the project with Ypres, we felt that a sophisticated marketing film would be appropriate to attract the discerning potential buyer. After presenting a storyboard proposal to Ypres that was approved, we began on the detailed model.

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Key Project

Princess Yachts International plc

Our work with Princess Yachts is both important and satisfying for the studio. Not only was the initial pitch win significant for us, but it also resulted in a great working relationship that has allowed the continual development of our product and service while working on fantastic subject matter. To date we've worked on more than ten different models for Princess Yachts and are currently in discussions for next year's models.

> "We are still some way off getting back to 2007-08 levels, but I certainly feel that we have turned a corner"

H I

the commission/creation of a five-minute film that had live HD footage, which was shot on location by our team and carefully crafted animation sequences of forthcoming properties. The film is displayed in the marketing suite, online and distributed as a DVD within the marketing pack. Also, a set of 11 high-res still images were created for the brochure, website and site hoardings. The imagery has appeared several times in the property sections of *Lancashire Life, Lancashire Magazine* and local press.

3DA: *A change of pace came with an animation sequence for Scholl. Was this different to work on, and in what way?*
BB: Both the Scholl projects we worked on needed the 3D model built directly from the prototypes of the shoes. This was a bit more time-consuming in the preparation and building compared to the import of CAD plans provided for most architectural projects. And the organic shape of the shoe needed a more free-form poly-modelling approach than the architectural projects.

3DA: *Most architectural projects tend to use glass and concrete. Have you been involved in projects that use slightly more unusual materials, and what were they?*
BB: Recently, we've seen unusual materials being specified by some of our architectural clients, in particular COR-TEN steel, which has a rust-like appearance if exposed to the weather for several years. We've also seen an increase in the specification of green roofs and living walls, which have proved a challenge to visualise, just like all greenery!

3DA: *How have you coped with the effects of the global recession, and does it look like the industry is picking up yet?*
BB: We've seen a reduction in the quantity of residential planning and marketing work in the previous 12 months, which has had an impact. Thankfully, we have a number of clients who have a substantial amount of work in education and healthcare. This has gone some way to replacing the residential planning and marketing work that formed a large part of the studio's work.
The prime sectors seem to have largely been unaffected for us, with the biggest Princess Yachts project to date and the biggest individual residential project we've been involved in, completed in the last 12 months. We're still some way off getting back to 2007-08 levels, but I certainly feel we have turned a corner.

3DA: *What are your plans and ambitions for the company in the future?*
BB: In the short term we're looking to strengthen relationships with our clients and continue to improve the quality and effectiveness of our products and service.

F High-resolution product shot of Peroni Nastro Azzurro beer

G Still frame taken from the latest Scholl animation, which was commissioned by Foundry Communications

H Exterior visual of the Princess P58

I Interior visual of the lower saloon in the Princess V52

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Composition, Texturing, Rendering

Software used in this piece

Vue 6 Photoshop

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Dominic Davison

3DArtistonline

Username: Dom1

Personal portfolio site www.3dartistonline.com/user/dom1

Country United Kingdom

Software used Vue 6 and Photoshop

Expertise Dominic specialises in digital landscape creation, three-dimensional composition and rendering

Concept

I started with a drawing of what I wanted to achieve. This gave me a basic guide to camera angles and perspective, as well as the placement of objects.

A Reference paintings and photographs of wintery scenes

B Put in the background sky after all other objects have been placed

01 Ideas and references

I needed to get some ideas for winter and snow scenes. I am generally inspired by fine art or landscape photography. I'm a real fan of Dutch winter scenes, and so an artist like Barend Cornelis Koekkoek is a great inspiration. Thomas Kinkade's winter and Christmas scenes were certainly an influence in my picture, too A.

02 Choose a background sky

For this scene I wanted a good background sky without having to re-create one in Vue. There are many stock photo websites with great-looking skies, such as www.imageready.com or www.shutterstock.com. I recommend placing the sky when you have finished adding all your objects. To add a background sky, choose the Alpha Plane in Vue and load

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Winter village scene

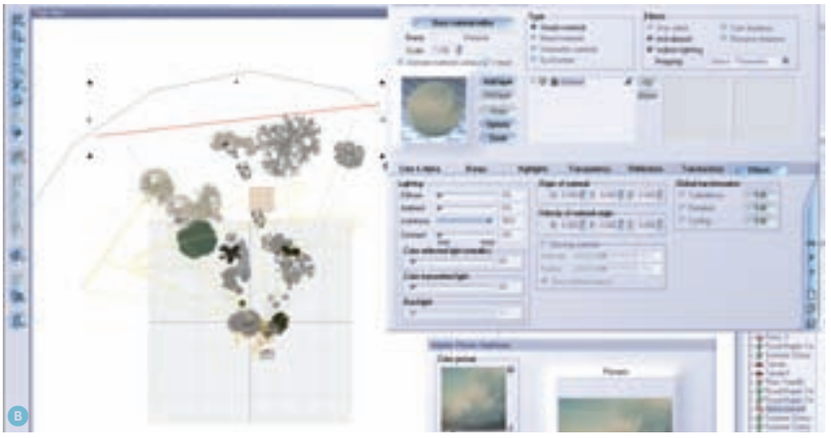
December Morning 2008

> This was one of several winter scenes created for a series of Christmas card designs

Dominic Davison is a digital artist and picture editor

This tutorial will show you how I composed and painted my winter scene. Most of the composition in Vue was relatively simple and didn't include any complex ecosystems or material editing. Because Vue is not really a painting program, getting a material like snow to look real is always a challenge. You can use snow materials and textures, but they can look unrealistic on certain objects, such as rooftops. I prefer to paint over objects in Photoshop using different brushes, which gives the snow a more natural look. You don't need to be a great painter in order to achieve great-looking results, just patience when painting over all the areas that aren't covered by snow and filling in any gaps. The key is choosing the right brush and changing the settings of it. The real aim of the image was to create a picturesque wintery scene for a series of Christmas cards.

your image. Remember to edit the image and choose the Effects tab. Then turn Luminosity up to 100% and the rest of the Lighting sliders to 0 B.



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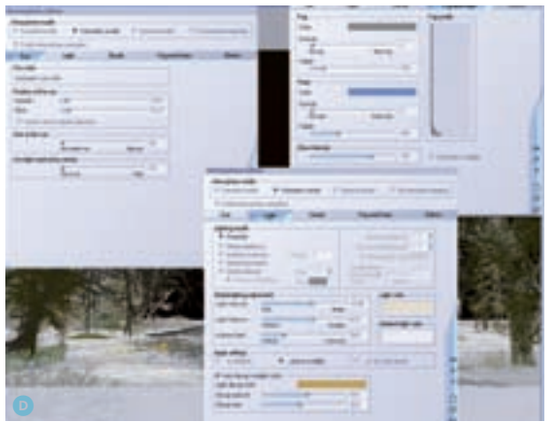
C 3D models from www.cornucopia3d.com were used in the scene



D The main atmosphere, lighting and fog/haze settings

Problems and solutions

When you create a new scene, the first thing to be aware of is the scale of everything. Anything from the terrain, buildings, trees and people, it all has to be in perspective. When loading an object into a scene, it may sometimes be much larger than surrounding objects. You should take an object such as a house and then scale everything else around this. One other way of checking to see how large an object is, though, is by looking at its shadow. A small bird's shadow wouldn't fill an entire ground terrain. Remember that if a material is scaled too small for an object, this can cause patterning. To fix this increase to the scale of the original material, go to the Color and Alpha tab and edit the mapped image material. To accurately place a newly loaded object, remember to use the Drop Object tool on the bottom of the left toolbar. To get objects to line up accurately, select each item and click the Alignment tool, just above the Drop Objects button. This will allow you to line up models or objects along the x, y or z axis.

03 Collect and sort objects

There are a number of different objects used in this scene. The buildings and bridge are low-poly models from www.cornucopia3d.com, which is fine as they are positioned quite far away from the camera and don't require as much detail. The trees are mostly from Vue's internal collection and some from Cornucopia C.

04 Atmosphere and light settings

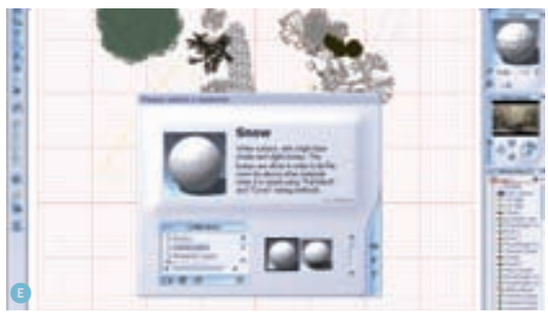
Next up, load the Sant Maurici atmosphere from the sunshine 1 collection. Position the sun's Azimuth to 19.57 with Pitch set to 14.27. Set Light intensity to 0.46, Light balance to 62% and Ambient light to 26%, then turn on Auto decay sunlight color, with a soft brown as the Light decay color. Set Decay amount to 56% and Decay rate to 46%. Finally, set Fog to 7% with Falloff at 15% and leave the Haze settings at 0 D.

05 Change the ground material

You now need to change the ground to the default snow material, which gives you a light blue shade and bumps. You will add to the ground later on when you paint in extra layers of snow using different brushes in Photoshop. This will give you a more natural snowy effect. E.

06 Sculpt the river bank terrains

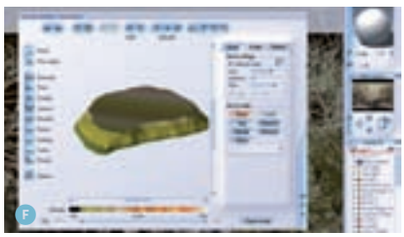
To construct the river bank closest to the camera, choose a terrain and double-click to enter the Terrain Editor. Then select Iceberg from the side panel. This gives you a nice flat surface and sloping sides leading down to the river. Then change the terrain to the default snow material. Don't edit the other terrains, just convert them to the snow material. Use the Drop Objects icon on the left panel to place each terrain onto the ground plane F.



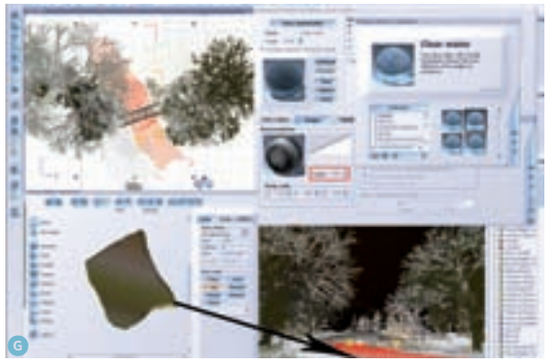
E The ground plane with added default snow material

07 Construct the frozen river terrain

To make the river, choose a default terrain then flatten and sculpt it roughly in the shape of a river in the Terrain Editor. This doesn't have to be precise. Place the terrain on top of the ground plane. It should appear below each river bank terrain. Now change the terrain material to Clear water. Bump settings should be 0.50 and Scale set to 0.10. Change the colour to a darker blue. Make copies of this terrain and place them further up the scene or in the direction you want the river to flow G.



F Simple river bank edited and sculpted in the Terrain Editor



G The terrain used for the river converted to a clear water material

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08 Place the houses and bridge

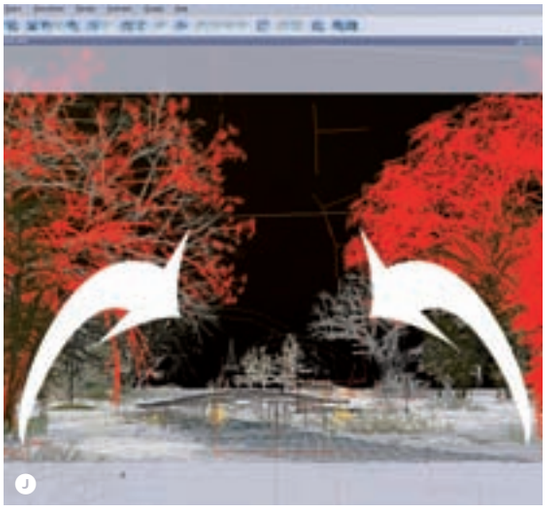
When loading in each object they will sometimes appear at different sizes, so make sure you resize them so they don't look out of place with the surrounding objects. Use the Gizmo tool found under the Display tab to get more accurate control of the size and alignment of each object. Position each house in line with the flow of the river H.

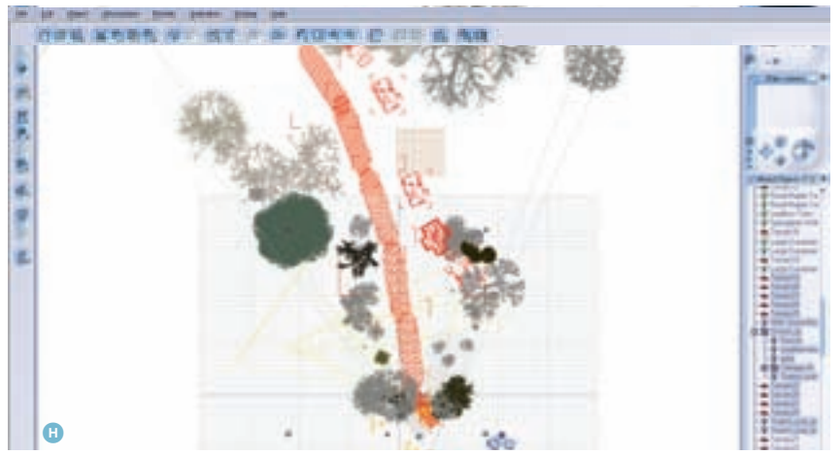
09 Select the trees

Dead winter trees with no leaves and those with snow-covered leaves suit this type of scene. If you use the preinstalled trees in Vue, you can always remove the leaves by turning them transparent. For trees in the distance, you can also change the colour of the leaves to white to give the impression they are covered in snow I.

10 Place the trees

The most important factor here is to frame the image with large trees in the foreground. This gives a sense of depth to the scene beyond. Placing the trees at a slight inward angle nearest the camera acts like a curtain. It is also important to lower the tree roots further down than normal to show that the snow is thick in these areas J.





H Buildings positioned along the flow of the river

I The main foreground trees used in the scene

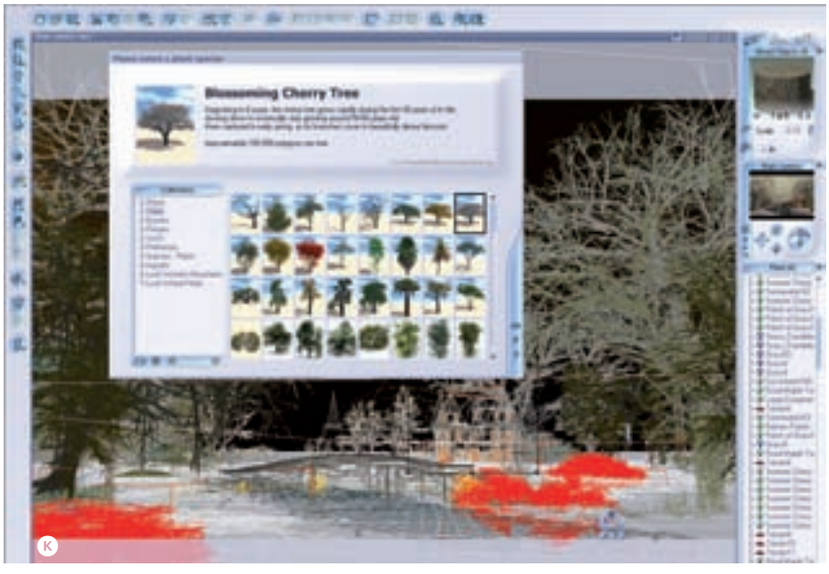
J The trees tilted at a slight angle to frame the rest of the scene

> "Dead winter trees with no leaves and those with snow-covered leaves suit this type of scene"

11 Place the ground shrubs

Ecosystems could be used for the ground bushes and grasses, but keep things simple by using some of the default trees, changing the colour of the leaves to white and placing them deep into each of the terrains. If the scene had been of a large field or meadow then ecosystems would have been used to cover more area K.

K Trees placed into the terrains acting as bushes



Lighting and rendering

This is the area that is probably the most important aspect of your scene, as it will determine the overall quality of your final render. For this scene I chose a volumetric atmosphere, which is a cross between standard and spectral models. It tends to render quicker than spectral atmospheres but still offers a high level of realism. Light balance was important in terms of getting the right amount of ambient light (or sunlight). I didn't want too much sunlight to drown out the appearance of the snow. Fog and Haze settings were also turned down to give the background sky more prominence. The volumetric atmosphere determines how the sunlight and ambient light interacts with the Haze and Fog settings. Fog refers to larger particles in the air that reflect and scatter light, whereas Haze is made up of particles and molecules that make up the blue light of the sky and the yellow to red of the sun. The settings I chose were my own personal preference, but it is all down to what kind of weather conditions you want.

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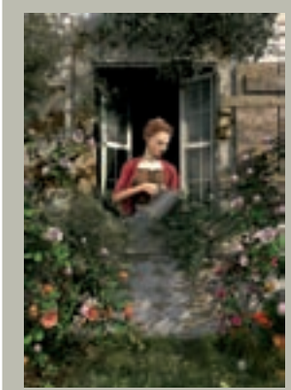
Artist Showcase

Dominic Davison

I'm Dominic Davison, from High Wycombe, Buckinghamshire, UK. I currently work as a freelance digital artist. I had an interest in art from an early age and have been drawing and painting for as long as I can remember. I have been a digital artist for around four years, primarily using Vue, Painter and Photoshop.

Cattle By A Stream **Vue 6 and Photoshop (2009)**
This image was inspired by the painting of the same name by Barend Cornelius Koekkoek. It was an experiment in light and shade, using powerful Spot lights in place of the sun



Lady At The Window **Vue 6 and Photoshop (2008)**
This was the first render I made that included a prominent Poser human figure. There was some additional postproduction work on the woman's skin tones

Market Harbour **Vue 6 and Photoshop (2009)**
This render includes a large ecosystem of houses, as well as low-poly human figures. Without the human characters the scene looked empty, so it was vital to include them

12 Edit the first right-hand side tree

Load the Blossoming Cherry tree and place it near the camera. Resize it to fill the screen, then double-click the tree. In the Plant editor, set the Falloff to -46, Gnarl to -9, Diameter to 59, Droop to 19 and Angle to -7. Now you need to remove the leaves by going into the Material editor. Select the Transparency tab and uncheck Variable transparency (L).

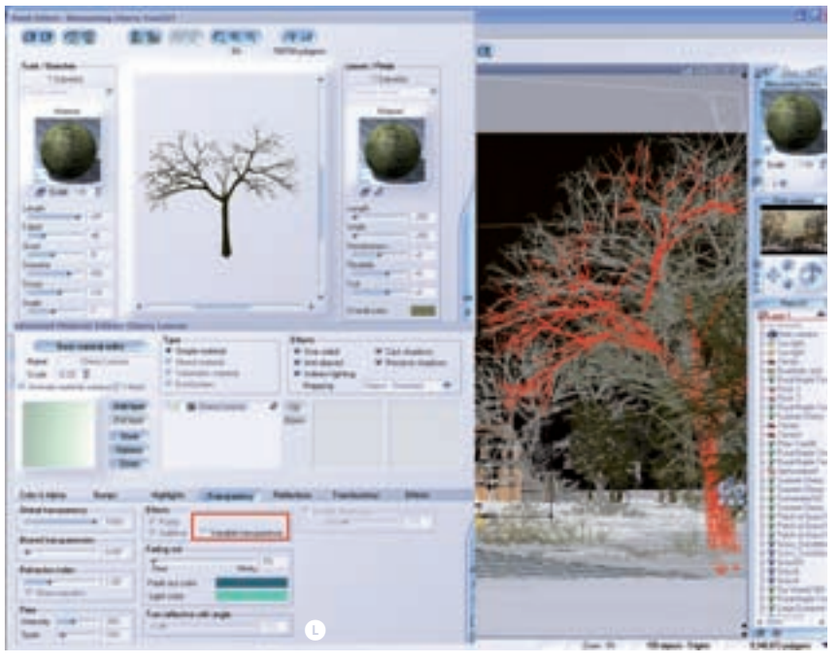
13 Changing of the seasons

Load the Summer tree from the default trees selection. Position it behind the tree you have just edited at an angle of 45 degrees, as shown in the screenshot. For this tree the leaves have been included, but you need to change them to white. Double-click the tree to change the colour or use the Material editor. Using the Plant editor, set Droop to 15, Angle to -20, Gnarl to 24 and Falloff to 22 (M).

Textures

For objects or terrains that are closest to the camera, consider using high-resolution textures. This is especially the case for things like bark textures on trees. You can find many of these textures for free on the web.

(L) Use the Plant editor to edit the tree trunk and branches



(M) Changing the leaves of the tree to white

(N) Edit the Leafless Tree and change the branch settings

14 Edit the left bank tree

For the foreground tree on the left, we're using the Leafless Tree from Cornucopia3d.com. Place at an angle in the direction of the right-hand trees. Double-click the tree to access the Tree editor. Now change the Droop of the Trunk/Branches to 10 and the Angle to 20. Repeat the previous step for the tree behind this tree on the left bank (N).

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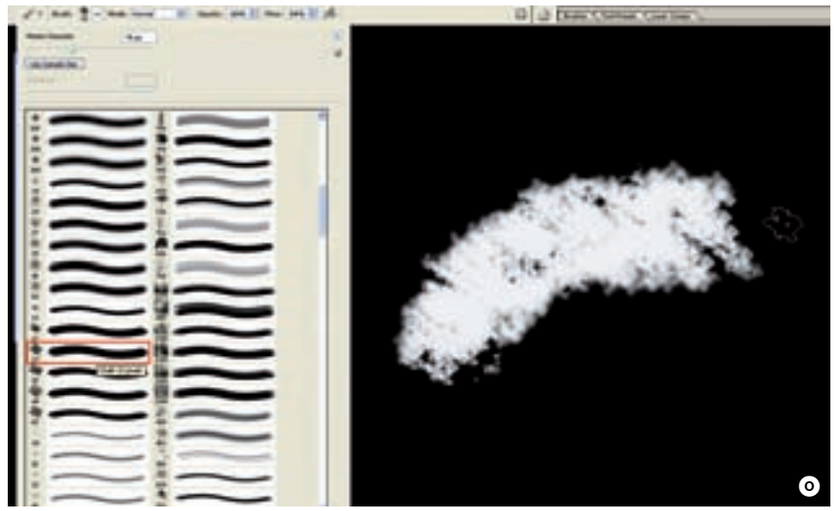
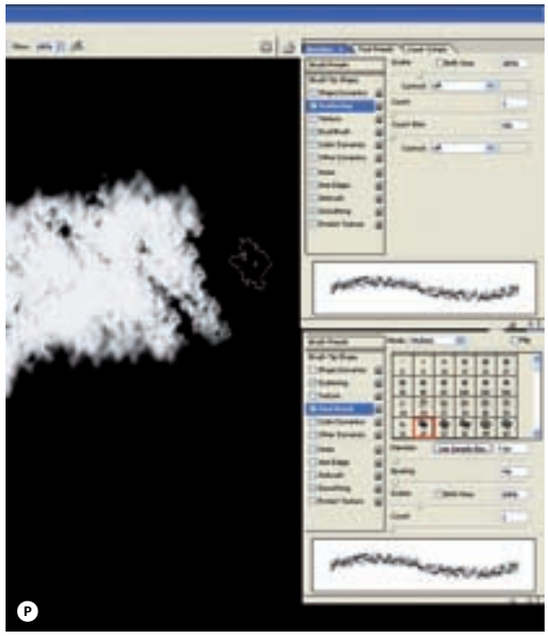
15 Realistic snow

Choose a combination of chalk brushes to get the most realistic snow that give the best results. First choose Chalk 23. Keep Opacity and Flow at 100%. Feel free to experiment with other brushes, as there is no set rule here. This brush gives a nice thick consistency, similar to that of snow O.

16 Brush settings

Open up the Brush Presets panel and tick Dual Brush. Choose chalk 17 from the list. Now select Scattering and move the Scatter slider to 200%, the Count slider to 1 and Count Jitter to 0. This gives a nice random brushstroke. For the brush colour, choose the Eyedropper tool and select an area of snow in the render. You could select the colour of one of the terrains. Make sure when painting in darker areas or shadows to select an area of snow already in shadow or light, so what colour you're brushing matches the rest of the scene P.





17 Paint in the snow

When painting larger areas, increase the Scattering to get more space covered quickly. For more intricate and tight spaces, such as branches on trees, reduce the Scattering and lower the overall brush pixel size. Remember to scan the render for areas you may have missed, such as the tops of chimneys, windowsills, surface of the bridge, etc Q.

18 Final colour and light changes

To get a colder overall feel to the scene, choose a Photo Filter. You could experiment with the Color Balance sliders, but this may be too destructive. Choose Cooling Filter (82) with a setting of 10%. Also increase the contrast and slightly sharpen the final render R.

> "For objects that are closest to the camera, use high-resolution textures"

Rendering the image

The actual render only took around ten hours, which was mainly due to using a volumetric atmosphere. This is compared to a scene with Radiosity, which would have taken a lot longer. I chose an Aspect Ratio of 16:10 (widescreen) and set the Advanced Effects slider to 59%, which is a nice balance between speed and quality.

O Selecting one of the chalk brushes to get that snowy look

P Changing the brush settings by adding a Dual Brush and Scattering

Q Painting in the snow on one of the trees

R The 3D render before and after Photoshop postproduction work

10 hours render time
Resolution: 4,800 x 3,000

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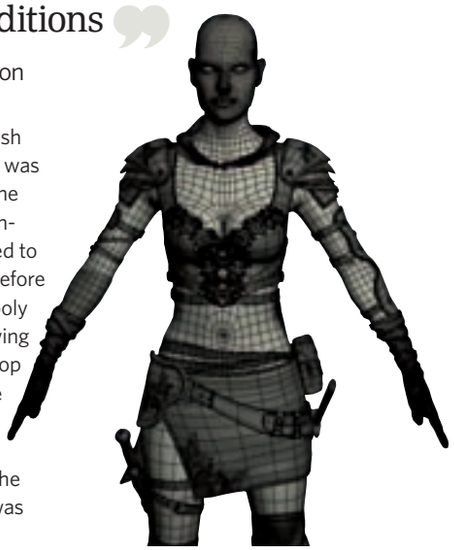
Step by step: Create a fantasy scenario

Female Rogue 2008

How to model a female fantasy character and render her under subdued lighting conditions

Dani Garcia Fornés specialises in character creation



This tutorial will show how I used 3ds Max, ZBrush and Photoshop to create *Female Rogue*. 3ds Max was used in all of the stages – it was used to model the low-poly versions of the character and the low- and high-poly versions of the clothes and scenery. It was also used to pose the character, create the hair and light the scene before rendering. ZBrush was mostly used to create the high-poly versions of the character and some of the clothes, allowing a level of detail that wasn't possible otherwise. Photoshop was used to create all the textures for the character, the clothes and the scenery, using a combination of real photos and painted layers and effects. I also had to use the Hairtrix plug-in to create the hair, because none of the other solutions I tried were working well enough. This was probably the trickiest part in the entire project.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Dani Garcia Fornés

3DArtistonline
Username: Woodys3d

Personal portfolio site www.woodys3d.com

Country Spain

Software used 3ds Max, ZBrush and Photoshop

Expertise Dani specialises in characters, covering modelling, texturing and rendering

Concepts

Inspiration behind the figure

01 **In a project** like this one, I always like to find as many references as I can and also be very clear about what I want to do before starting to model. For this image, as the subject was a rogue, I searched for references in videogames, illustrations and real photos.

02 **Once I've done** some research, I try to design some nice clothing for the character. For example, the body armour was inspired by a lingerie photo. I used it as a reference and started tweaking it to make it look like armour. I also got the idea of that pattern from there, which I used on some other parts.

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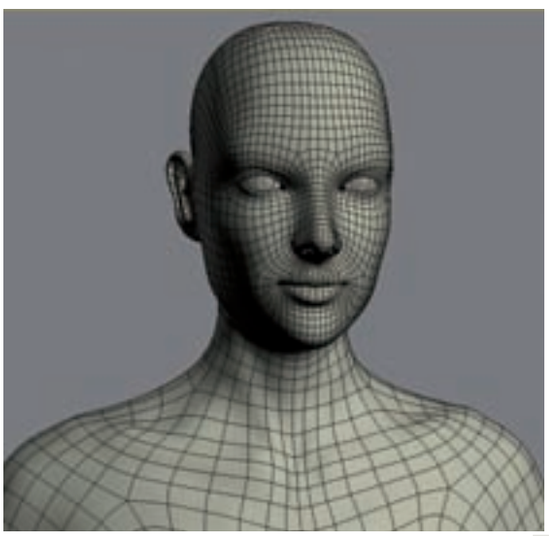
Modelling, Composition, Texturing

Software used in this piece

3ds Max | ZBrush | Photoshop

03 **Getting a nice** pose for the character is also a very important step before starting to model. I considered some different ideas for the posing before deciding on the final one.

04 **I had a** headless body done from an old project that I reused for this one, so I only had to model the head. I did a low-res version of the head in 3ds Max and then I detailed it in ZBrush. Once it was done, I merged both objects in ZBrush.



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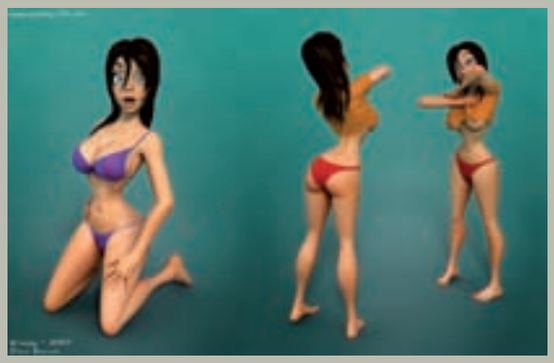
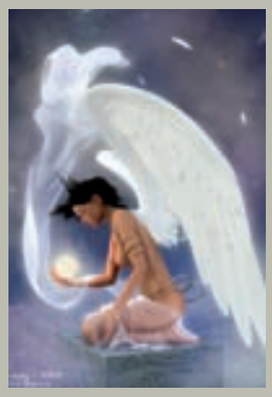
Artist Showcase

Dani Garcia Fornés

I've been working on 3D for around five years. I've specialised in doing characters, and I'm always trying to increase the realism and quality of each new character I do. I prefer to work on female models, but I've also worked on other kind of characters.



Samantha **3ds Max, Photoshop (2007)**
I did this character inspired by the works of a great 2D artist, Dean Yeagle. This character was rigged so I was able to pose her, even if I wasn't intending to animate her. I tried to make her cute and sexy at the same time



Angel **3ds Max, Photoshop (2005)**
This character was done a long time ago when I was working on a series of mythological women images. This was the last one I did on the subject, and the one I'm most happy with. I have a few more planned that I might do in the future

Arkeon **3ds Max, Photoshop (2005)**
This was my first attempt at a low-poly character. As a reference, I used a miniature of a board game called Confrontation. The Normal maps were also done with 3ds Max, as I wasn't using ZBrush that year yet, so it was a bit painful. It has 7,887 tris

Modelling the figure

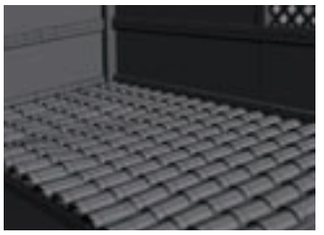
Getting the proportions right

05 **My workflow in** ZBrush always begins by subdividing the model once, detailing as much as I can in that subdivision level. Once I am happy with that level, I subdivide it again and continue detailing until I get around seven subdivisions. I try to do as many adjustments as I can in the lower subdivision levels, because the more detail you can do there then the less you will have to tweak in the higher levels.

06 **Once the head** and body were done, I sent them to 3ds Max to start working on the clothes. Having the body complete is very useful to make the clothes, as I could duplicate the body model, delete all the polygons except the ones conforming each cloth and tweak them to give it the final shape.

07 **I built low-poly** versions of most of the soft objects (like the cloak, gloves, boots, etc) and high-poly versions of the hard objects (like the chest armour or shoulder pads) in 3ds Max. Once I was done with the hard objects, I sent the soft objects over to ZBrush for detailing, and this is the result of this process.

08 **The scenery was** also done in 3ds Max. The only tricky part was creating the tiles on the roof. I created one and cloned it until I had a vertical line. Then I duplicated the line and mirrored it to create the lower lines. Once I had this structure, I duplicated it until I had a roof full of tiles and finally used an FFD modifier in all of them to make the roof look irregular.



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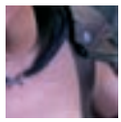
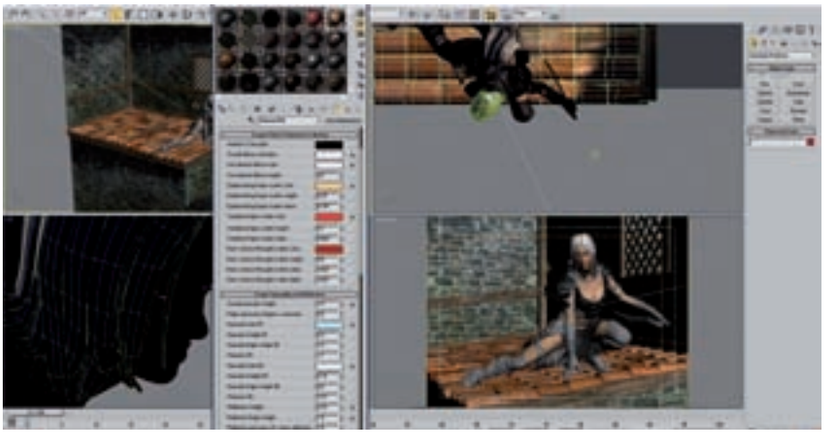


Lighting and rendering

Adding atmosphere and colour

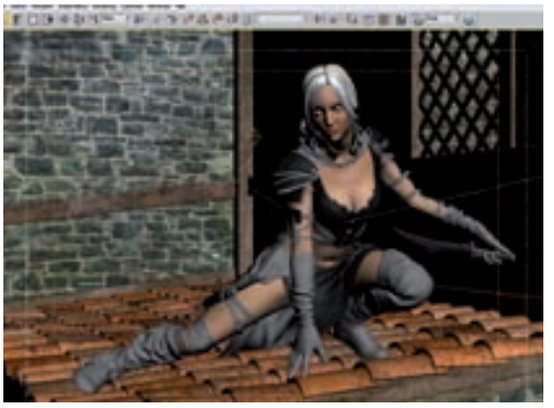
09 **I used Photoshop** to create the textures. I always use a combination of real photos and painted layers to create them. Once I have the diffuse one, I usually create all the others I need from this one, applying filters and some layers to modify them the way I need to.



10 **I used mental** ray to render the scene. Most of the materials were done using the Architectural material, and the Skin material was done using the SSS skin material. Here's a screenshot of the settings I used for the skin. The material also has a Normal map in the Bump channel, which can't be seen in the image.

10 hours render time
Resolution: 3636 x 2657

11 **Here's the final** version of the body textured. She also has a first version of the hair that I did using textured planes. It wasn't looking too bad in this stage, but I had to change it in the final scene because it wasn't looking realistic enough.



12 **To pose her**, first I created a low-res version of the scenery to see where everything would go, and using a biped I then did a very fast and rough skinning of her. I posed the biped to the final pose and then I just had to fix the parts that were damaged during the posing (like knees, elbows, etc).

Hair

The hair caused me the most grief for this project. I tried up to three different methods until I got some hair I liked (textured planes, 3ds Max's hair system and the Hairtrix plug-in). Textured planes were looking good in the T-pose but not in the final scene, and 3ds Max's hair system was crashing and causing a lot of problems, so I had to discard it. Hairtrix was a good solution for me, as it let me create the hairstyle I wanted without any problems. I just had to define growing zones for the hair and to use hair guides to define the hairstyle.

13 **I only used** mental ray's Spot lights and Omnis to light the scene. There were a few small blueish sources of light in the outside environment, a stronger white source to better light the character and strong yellow lights coming from inside the building to give her a rim effect.

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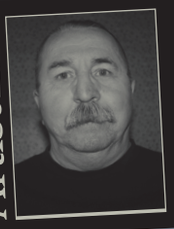
I made this...

Incredible 3D artists take us behind their artwork

Artist info



Andy Strukowski

3DArtistonline

Username: ajsa51

Personal portfolio site http://ajsa51.cgsociety.org/gallery/

Country Canada

Software used Vue 6 Infinite from e-on software

“For the composition I was keeping in mind the rule of thirds and used that as a guide, keeping the horizon a third of the way from the bottom of the image. I also wanted to make sure that I had something in the immediate foreground, which would provide an entry point into the image and, along with the fog, would also add to the depth”

“Rendering was done using the Ultra setting, Vue’s highest preset setting, which includes ray-traced shadows, reflections and transparencies”

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The Land That Time Forgot 2009

The title of the image and the inspiration for it is based on a 1918 novel of the same name by Edgar Rice Burroughs. The novel was adapted for film in 1975 and produced by Britain's Amicus Productions.

"For lighting, the scene uses only one volumetric directional light. Global Illumination was used as the lighting model, giving an even light with soft shadows"

"Modelling the terrains was done from scratch in Vue's Terrain Editor, using the Paint feature with an alpha mask for the brush. Effects like the stepping were also done in the Terrain Editor to give a hint of a possible ancient civilisation occupying the area. The Viking ship and dinosaurs are models that come with Vue"

Software used in this piece

Vue 6

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Step by step: Create an American muscle car

Chevrolet Camaro 2009

> This issue we finish our quest to build an accurate, photorealistic model of the new Chevy Camaro, finishing the modelling of the exterior, setting up the materials and lighting and compositing the final render

Lance Hitchings is a graphics designer

On the Disc

Save yourself some modelling time by using the model and maps created here

NURBS surfaces, high-res and low-res polygonal models, OBJ and FBX versions of the files, separate texture files, plus the PDF of part 1

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Part two

Find part one on the disc

Software used in this piece

Maya Photoshop

Last month we built the body of our Chevy Camaro, using NURBS patches built from detailed curves. This month we'll finish modelling the exterior of the car using more traditional polygonal modelling techniques. We'll tackle the tyres and wheels, including the brake disc and callipers. We'll build the headlights, rear lights, parking lights, side marker lights and the fog lights. We'll finish out all the trim, including the wipers, door handles, tailpipes, grills, antenna, the Camaro logo and the Chevy bow tie logo.

We'll also build and apply all of the various materials for the car, focusing on the car paint and the rubber tyre material.

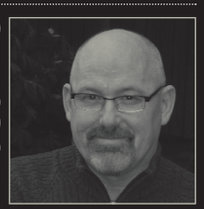
Next, we'll set up an automotive lighting rig. We'll base this lighting rig on an actual studio lighting setup to produce one of the most current automotive photographic styles.

Again following current automotive photographic trends, we'll then produce several renders – including masking renders – that we'll use in a Photoshop composite of our final Beauty shot.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info



Lance Hitchings

3DArtistonline
Username: lhitch

Personal portfolio site www.hitchingsdesign.com

Country USA

Software used Maya, modo, Photoshop, Illustrator

Expertise Lance excels at photorealistic images, particularly of hard-surface objects. Most of his projects are product illustrations

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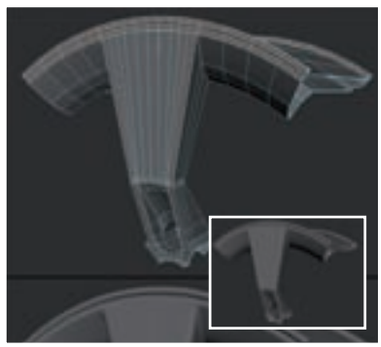
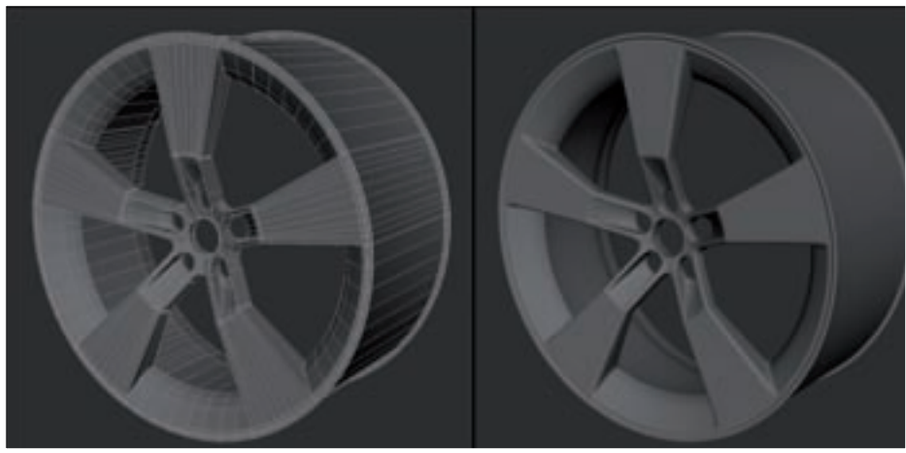
Where the rubber meets the road

The wheels and tyres

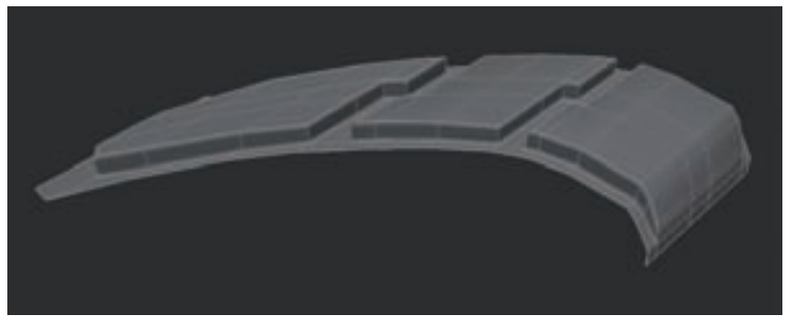


01 This month, we'll start with the wheel and tyre. For the wheel I started by building the shape that is selected in the above left image, then mirrored it across the X axis. As with all meshes, I built a simple low-res mesh that's designed to be smoothed into a high-res mesh. Whether you smooth or use subdivision to get your final mesh, you'll need to add edge loops to hold the desired shape when you increase the resolution. The extra edge loops I added for the wheel are selected, as seen in the above right image.

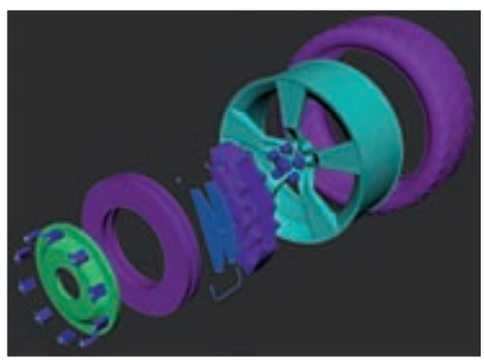


02 To complete the wheel, I duplicated the mesh from the previous step around the Z axis four times, rotating each piece 72 degrees. These five pieces were then welded together and smoothed.

03 For the tyre, I started by loading an image of a tyre's tread into the image plane for the top camera. I built a single piece of tyre tread with the upper and lower edges a consistent distance apart, so that when duplicated these edges would join precisely. I then multiplied this mesh 35 times, translating each piece a distance equal to the width of the piece along the X axis, and then welded all the pieces together.



04 Next up, I used a Bend Deformer in order to bend the whole tyre piece into a full circle. To get the finished tyre, I then extruded the sidewalls and mirrored the resulting mesh across the X axis.



05 This screenshot shows the pieces that were built to complete the wheel/tyre assembly. This includes the lug nuts for the wheel (blue), the brake calliper (purple), the brake pads (light blue) the brake disc (magenta) and the wheel hub (green). The image on the right shows how these pieces were all assembled, and above it how the assembly looks with the final materials.

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Let there be lights

Building the rear lights

06 **The process for** building the headlights, fog lights, parking lights and rear lights is very similar. I'll demonstrate it in detail on the rear lights, then quickly go over how the other lights were built.

I started with the outermost piece, which is the mounting bracket for the entyre assembly. Since it needed to dovetail into the body, I created my first shape by extruding an edge loop from the body. Since I was building a low-res mesh that would be smoothed into a high-res mesh, I used an edge loop from the low-res version of the body.

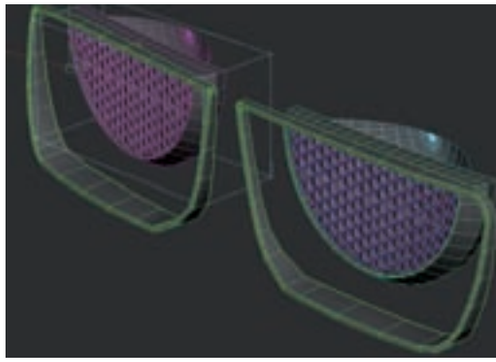
The top image shows this first extrusion. In the middle image, I've extruded the rest of the bracket from the other body pieces, welded the extrusions together and reshaped and repositioned the resulting mesh.

In the bottom image, I have extruded this mesh to create the basic bracket shape.

07 **Next, I created** a polygon sphere and threw away the top half. I then used the faces of the back half for a reflector and the faces of the front half (flattened slightly) for the reflector lens. I extruded an edge loop from the reflector lens and from the mounting bracket, and then chipped off these faces using the Mesh> Extract command.

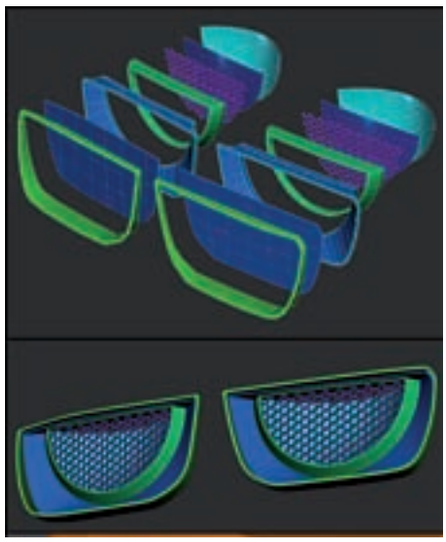
In the middle image, I extruded the row of faces from the reflector lens several times to build the reflector lens bezel. In the bottom image, I used the row of faces from the mounting bracket in order to build the rear light's lens.

08 **The rear light** contains a honeycombed lattice. I started with a single hexagon I pulled out of the Soccer Ball primitive shape. I extruded the edges, duplicated it six times, repositioned these new meshes then welded them together and threw away all of the hexagons to get the mesh in the top image. I filled in the holes and extruded this mesh to get the shape in the second image. I then threw away all the faces except those in the third image. This shape could then be duplicated, and all the vertices fit together perfectly to form the final lattice in the fourth and final image.



09 **There are two** rear lights on each side of the car. For the outer light, I grouped the reflector, reflector lens, lens bezel and lattice together. I duplicated the group, moved it into position and used a lattice deformer to reshape the group to fit the outer mounting bracket.

10 **The top image** shows all the pieces for the rear lights. The piece (light blue) that joins the mounting bracket (green) to the lens bezel (light green) was built by extruding an edge loop of the mounting bracket, and then snapping all the extruded vertices to the lens bezel. The middle image show all the pieces nested together minus the lenses, and the bottom image show the rear lights with final materials added.



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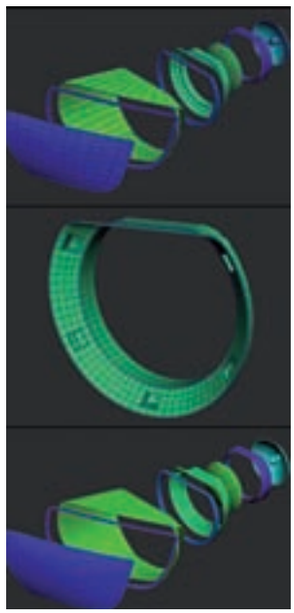
More lights

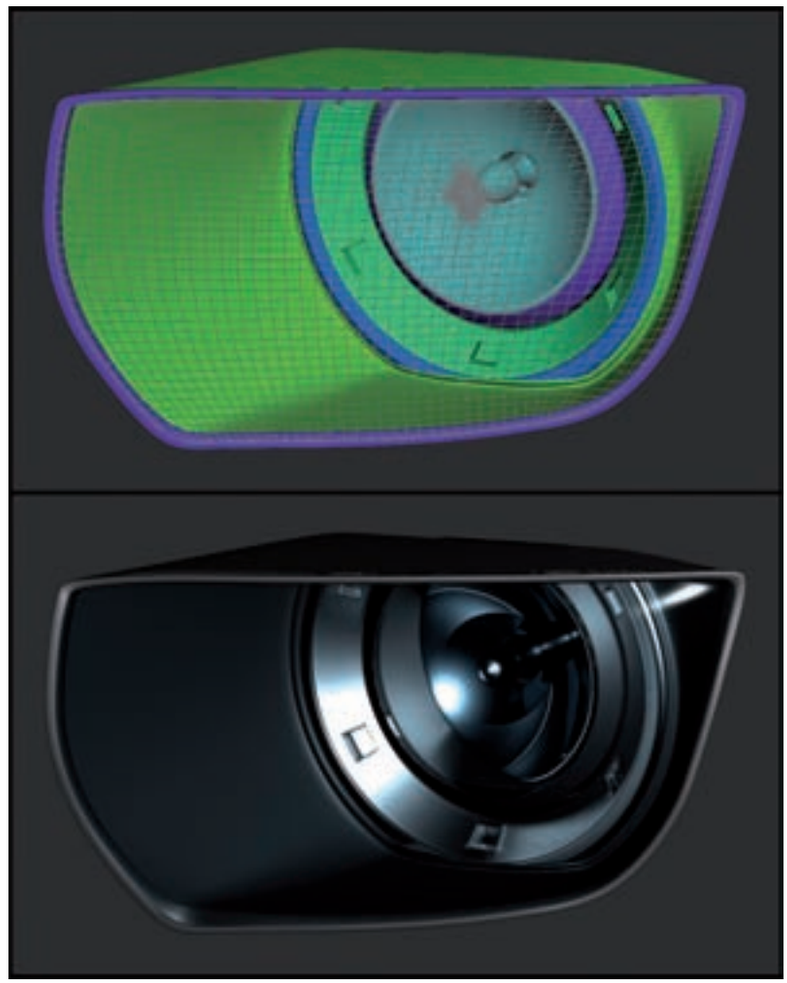
The headlights, parking lights and fog lights

Scene lighting

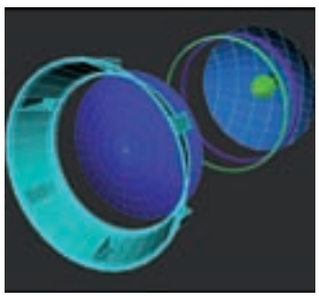
Image Based Lighting is a neat way of applying a lighting scheme to a scene, especially for shots that need to look like they are in a studio or showroom, which is the case here. In this case the IBL image is simply the spot lighting arrangement on a blank/black image so that the bright parts are added as highlights, the mid-tones provide general illumination and the darker areas towards the edge allow for lighting falloff. You can combine this with global illumination to even things out as well.



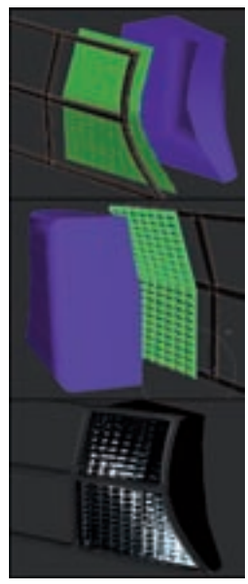
11 **The process for** building the headlights is very similar to the process for the rear lights. I started by extruding an edge loop from the low-res mesh of the front bumper. The top image shows all of the pieces in the headlight assembly. These include the front lens (blue), the mounting bracket (purple), a connecting piece (green), the first bezel (blue), a second connecting piece (light green), the second lens (green), the second bezel (purple) and the reflector and bulb (light blue). The second connecting piece needed to have some square holes extruded into it.



12 **The top image** shows all the pieces of the headlight assembly nested together, with both lens templated so that you can see through them. The bottom image shows the headlight with the final materials applied.



13 **For the fog** lights, I used the same technique again. The above image shows all the pieces of the fog light assembly in low resolution. For the reflector, I bevelled each of the vertical edges. The above right image shows the smoothed pieces of the fog light assembly nested together. The bottom right image shows the fog light with the final materials applied.



> “Using an HDR image plugged into an IBL node, any changes you make are global”

14 **Here is the** parking light, which was actually built after the grill. For the reflector box, I started with a 1 x 6-polygon plane and snapped the vertices to the grill. I then extruded the plane, selected the front polys and chipped them off the box using the Mesh>Extract command. After a bit of reshaping, I selected all the faces of the front piece (the lens) and extruded once with Keep Faces Together turned on. I then extruded a second time with Keep Faces Together turned off. I pulled the extruded polys a short distance in the Z axis, then scaled them down in the Local mode. This gave me a faceted lens. The bottom image shows the effect of the faceted lens after it has been smoothed and the final materials applied.

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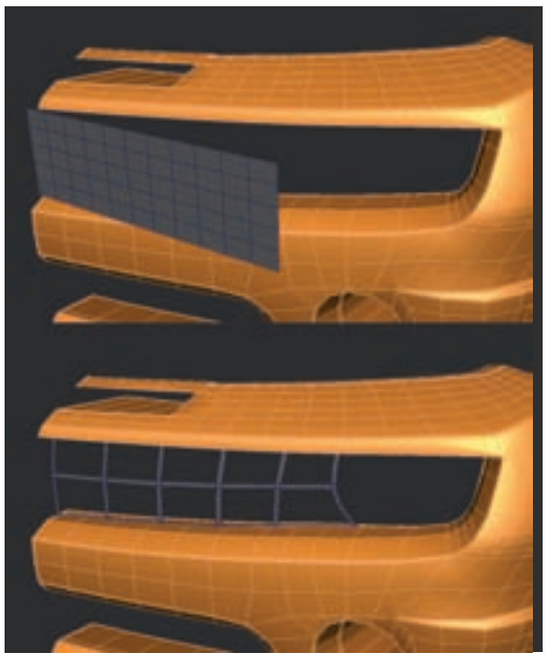
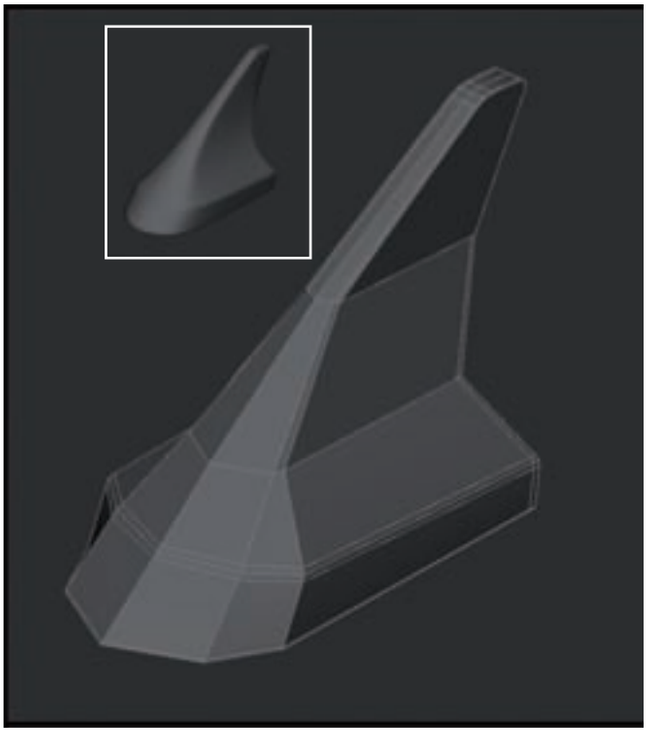
Bits and pieces

The rest of the car

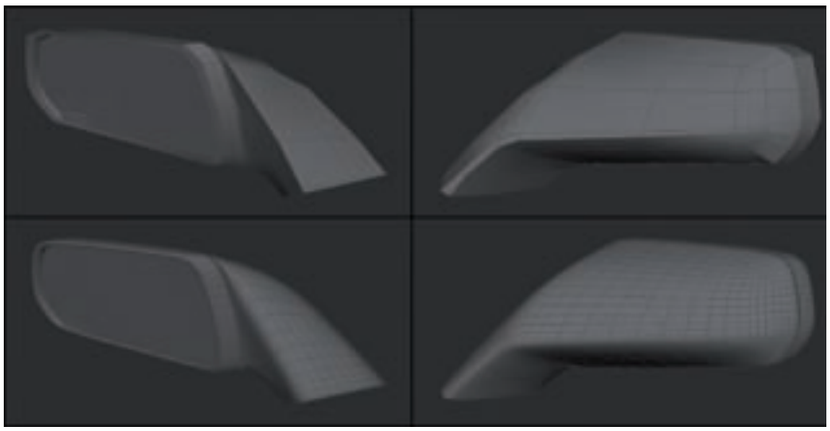


15 **For the grill**, I started with an 11 x 5-polygon plane. This gave me three horizontal bars and six vertical bars. I deleted the faces that would be the open spaces and then repositioned each vertex, using the low-res front bumper mesh as a guide until I had the grill shape. Then I simply extruded on the Z axis in order to get the grill thickness.

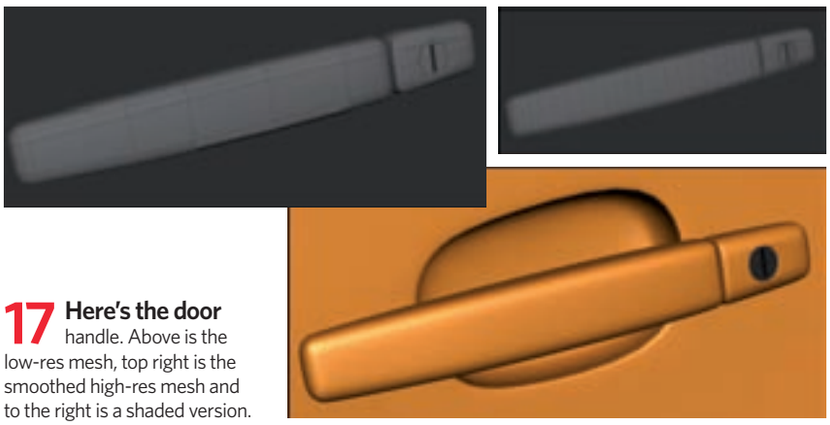


18 **The antenna was** a really easy shape to build. The above image is the low-res mesh, and the inset image is after smoothing. Here, you can really see how adding extra edge loops really holds the corners and creases when smoothing.

> “The antenna was a really easy shape to build. Adding extra edge loops really holds the corners and creases when smoothing”



16 **The rear-view** mirror uses a simple plane for the actual mirror, and the rest is a single mesh. The top two images show the low-res mesh that I built, and the bottom two images show that mesh after smoothing into a high-res mesh.



17 **Here's the door** handle. Above is the low-res mesh, top right is the smoothed high-res mesh and to the right is a shaded version.

19 **For the Camaro** logo, I built the letters as a vector path in Illustrator then imported those paths into Maya. I converted the paths into polys using the Surfaces> Planar command. Then I just extruded the mesh. For the Chevy bow tie logo, I started with a 3 x 3-polygon plane and deleted the four corner faces. I repositioned the vertices, creating the bow tie shape and bending the shape down the middle. I extruded once then bevelled the corners in order to round them off. The rest of the shape was built using some more extrusions.

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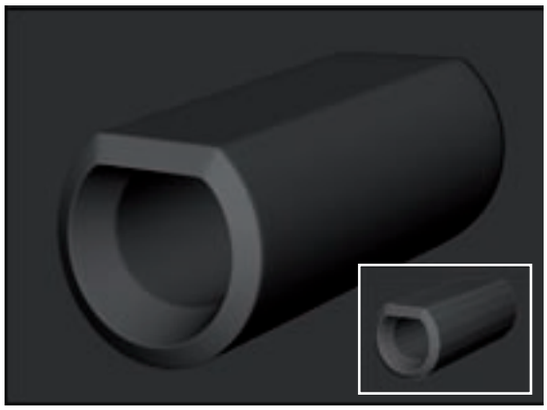
Details and reflections

Don't let exhaustion bring you down

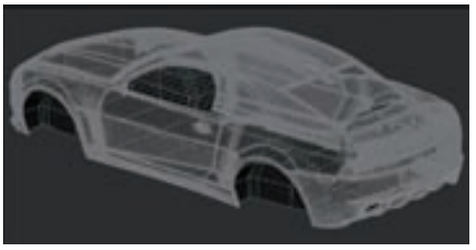


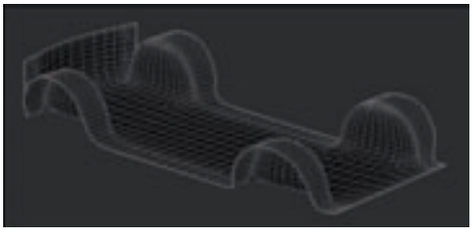
20 **The tailpipe was** another relatively easy shape to build. I started with a cylinder and set the end caps to 2. I reshaped the mesh to get the flattened top and the correct thickness of the pipe. Then I extruded the inner set of faces on the end cap to get the pipe shape. The bottom image shows the tailpipe after smoothing.

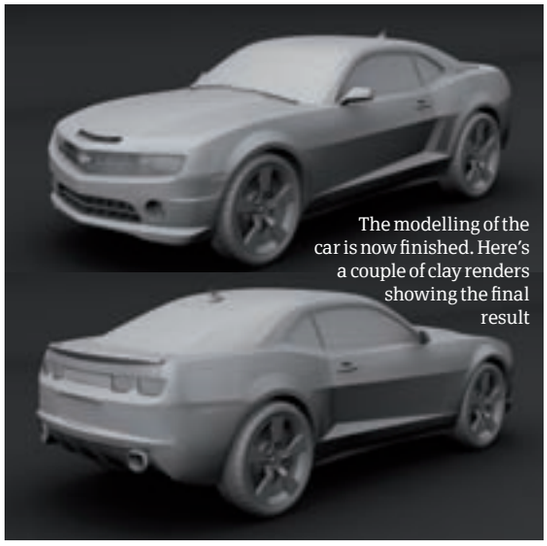
21 **The rear of** the Camaro has a panel at the bottom through which the tailpipes protrude. I started this shape by extruding an edge loop off of the rear bumper and chipping those faces off with the Mesh>Extract command. Then I extruded in several steps to get the basic shape. I used the Offset Edge Loop tool and the Insert Edge Loop tool to get the faces for the ribs and the outer ring, which I then extruded. Six faces were deleted to create the holes for the tailpipe. The middle image shows the extra bevels and edge loops that were created to hold the shape during smoothing. The bottom image shows the panel after smoothing.

> "Although it doesn't need to be accurate, you do need to create an undercarriage piece on your car"

22 **Although it doesn't** need to be accurate (unless you're planning on showing the bottom of the car), you do need to create an undercarriage piece to close off all the open spaces on your car, like the wheel wells, vents and grill. I started with a basic poly plane, reshaped to fit the bottom of the car. The top left image show this plane with the faces selected to create the wheel wells. The bottom left image shows the wheel wells after they were extruded in four steps and reshaped. I also extruded the front edges to create a backing for the front grills. The top right image shows how this undercarriage shape fits the body meshes, and the bottom right image shows the undercarriage after smoothing.







The modelling of the car is now finished. Here's a couple of clay renders showing the final result

23 **I used the** chrome preset, the thin glass preset for the windows and the Physical Glass preset for all the lenses on the headlights and rear lights. I used the blinn material with the Mi Reflection Blur attribute set high for materials like rubber and black anodised metal, as well as the mental ray car paint shader with pretty basic settings. I created a separate material for the top of the tyre treads (TyreTread), then duplicated the tyreSidewall material without the displacement (TyreTread2) and used that for the rest.

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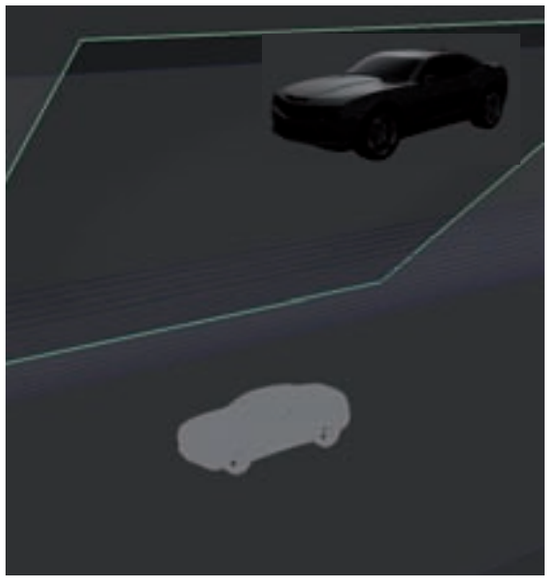
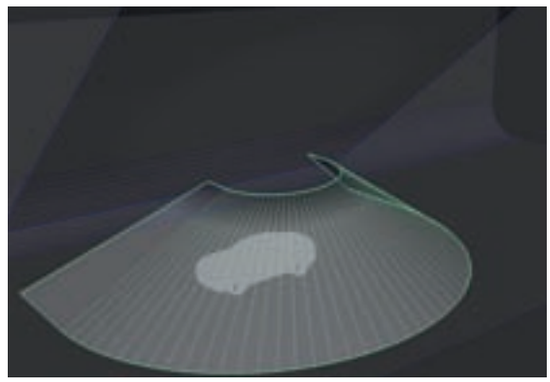


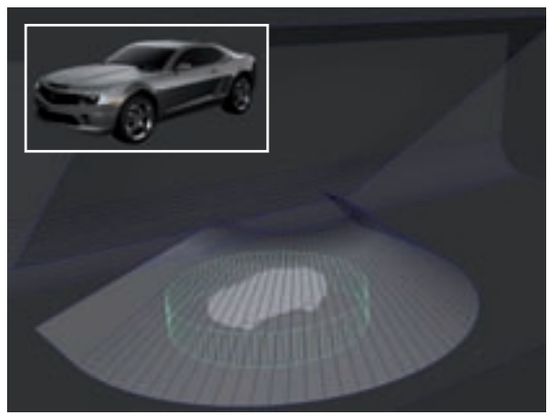
24 When photographing any highly reflective surface, such as chrome, glass or car paint, it's all about the reflections. Photographers will set up white cards as reflectors, and then bounce a soft light into them. This light is set up to create a hot spot with a lot of fall-off on the card. This will produce a really nice gradient in the reflection.

Almost all of the lighting in this scene is created with poly planes set up as reflectors. To start, I set up what automotive photographers call a flying flat. It's essentially a huge panel that hangs over the car and has one or more large spotlights bounced into it. This produces the reflection on all of the top surfaces of the car. Instead of bouncing a light onto the card, I mapped a gradient to the card. Here, we see the effect of this single reflector.

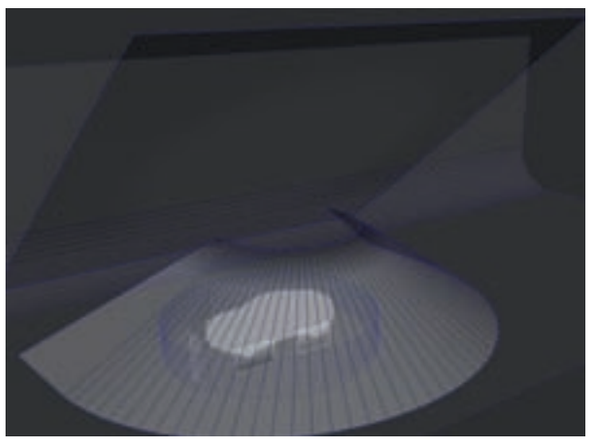


25 Next, I created a sort of conical shape to produce all of the reflections on the sides of the car. Photographers would use large vertical flats here, with a gap between them for the camera to shoot through. Here's where 3D artists have a great advantage over photographers. For all of my reflectors, I set the Render Stats in the Attribute Editor with Primary Visibility, Receives Shadows and Cast Shadows turned off. That way the reflectors show up in the reflections, but don't actually appear in the render. Here's the effect of the second reflector added to the first.

26 I wanted a phony horizon that matches the crease that runs through the wheel wells, and I wanted to kill those blown-out reflections in the wheels. I could accomplish both using what automotive photographers call a fence. This is a set of short dark flats that sit inside of the large white flats. Here, I used a wide, short ring. Here's the combined effect of the fence ring with the two reflectors.



27 The lighting was starting to look good, but the wheels as well as the front of the car had now gone too dark. To fix the front, I set up a small kicker card to cast an extra, lighter reflection into the front of the car.



28 The photographer will often light individual parts of the car, shoot them separately and composite the photos together in Photoshop, which is what we're doing here. I set up a few cards to create the kind of reflections I want to see in the wheels. It ruins the reflections in the paint, but I created a masking render to mask out the wheels in the composite.

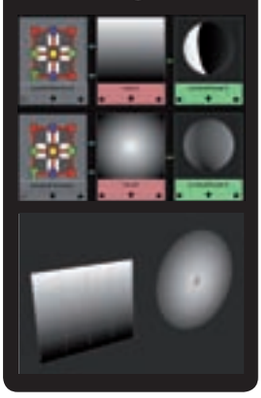
Expert tip

One of the problems with using an HDR image plugged into an IBL node is that any changes you make are global, affecting the whole scene. There are many HDR images of studio lighting rigs, with several umbrellas or soft boxes. But if you want to move one light or adjust the light output of another, as you would be able to do in the studio, then you're out of luck.

Here's a technique for creating a light source that more closely resembles the workflow in a photography studio. Plug a ramp texture into the Out Color attribute of a Surface Shader, and map the shader to a card (either a rectangular poly plane or the circular end cap extracted from a cylinder). In the ramp texture, delete the middle colour, change the bottom colour to black and the top colour to white. Overdrive the white value by setting it to a value greater than 1.0.

In a rig like this, overdriving the white value causes Final Gather to treat the ramp like an HDR image. Placing these cards in your scene gives you a light source similar to an Area light, except that it produces indirect light that bounces about the scene in a photorealistic manner.

You can light your whole scene with only these cards and, like in a studio, you can position and angle each card exactly as you need it, and precisely control the light output of each card by changing the values of the ramp texture. It's like you now have a collection of Final Gather lights.



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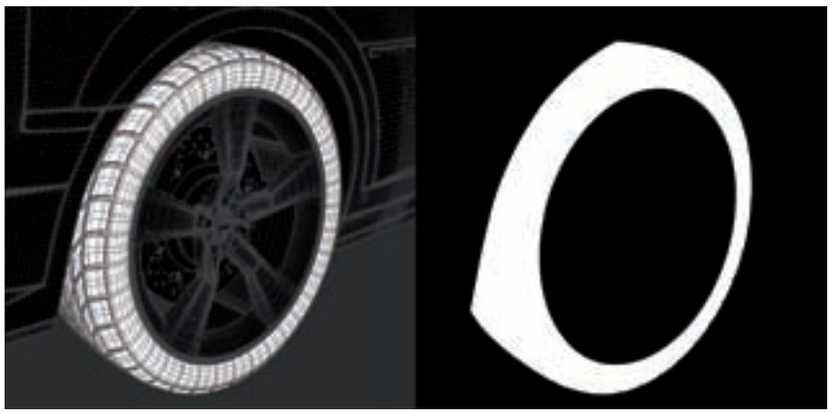
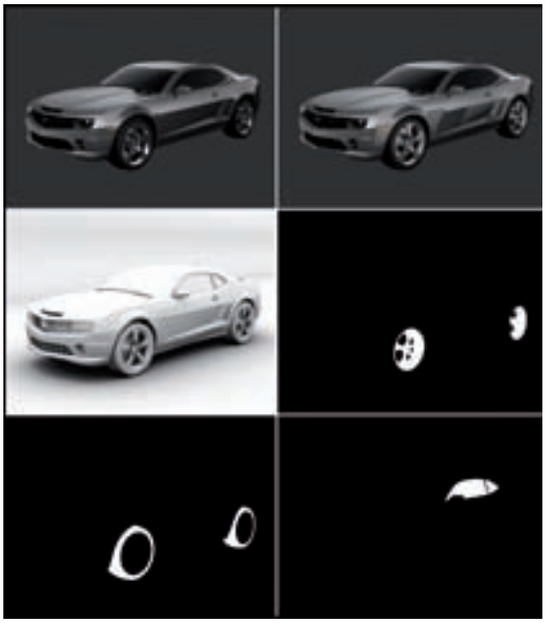
Finishing up

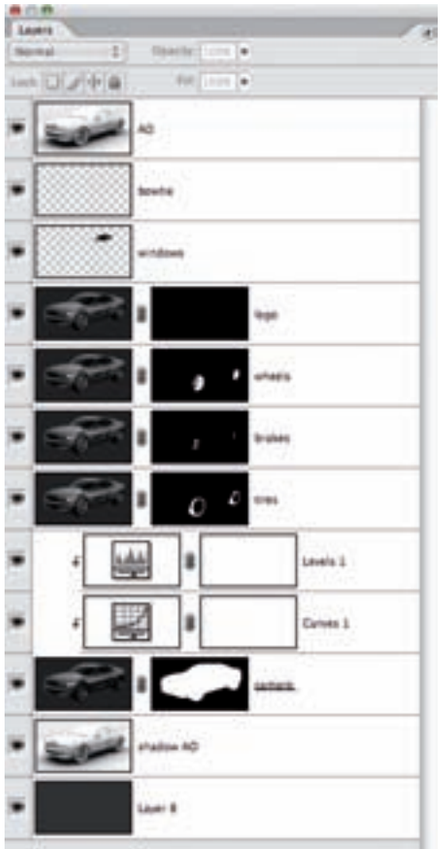
Rendering and compositing



29 **In addition to** the Beauty renders of the car, you'll also need an Ambient Occlusion render. You can select the car and the cyc (background shape) and place them on a render layer, then use the Occlusion preset. You can build an Occlusion shader by plugging a mental ray occlusion texture (mib_amb_occlusion) into the Out Color of a surface shader and applying the shader as a render layer override. You'll also need a number of really good masking renders.



30 **Here's a few** of the renders I pulled for the composite of the Camaro. Starting from the upper left is the main Beauty shot, a Beauty shot of the tyres, wheels and the Camaro logo, an Ambient Occlusion render and masking renders of the wheels, the tyres and the side windows.



31 **Here's a simple** composite of the Camaro. At the bottom is an Ambient Occlusion render at 80%, which just creates the shadow under the car, and then the main Beauty render with a couple of adjustment layers. Then is the Beauty render of the wheels, times four. Each of these four layers uses a different rendered mask and has a different blending mode and percentage. A couple of retouching layers, and then the top Ambient Occlusion layer set to Multiply at 50%.

32 **Here's the final** result. The top image is the primary Beauty render and the bottom image is the composite. The adjustment layers brighten the image and the wheels are much brighter, thanks to the wheel Beauty shot. The Ambient Occlusion layer improves the lighting and brings out the detail, particularly around the side windows. And that's it! For the main image at the start of the tutorial I added a paint colour scheme to make it stand out even more.

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Not just for dummies

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Pavel Romsy

3DArtistonline

Username Fortunatus

Personal portfolio site www.romsy.cz
www.michellebivotti.com

Country Czech Republic

Software used VIZ 2008, Brazil r/s v2, Adobe Photoshop CS3

Software used in this piece

VIZ 2008 | Brazil r/s v2 | Photoshop CS3

"Background photography comes from my archive"

The Last Avia
2009

The reason for my choice of the Avia is simple. I was asked to make a cover illustration for a book about the Czechoslovakian prewar air force about a year ago. I got back to this model and improved materials, lighting and rendered only a single Avia, although the book cover has three Avias climbing up into the clouds. I have liked the Avia B-534 since I was a small boy and saw it in my father's display of plastic models.

The Avia was the Czechoslovakian prewar biplane fighter. All Czech planes were captured during WW2 by the German army and used for testing and propaganda films. Not one single B-534 has survived to the present time; there is only one reconstructed model in the Czech military museum.

My image tells the story of the final surviving one, but I don't know which codename was truly the last. Also, an important note is that half of the aircraft markings are original and the other half are fictitious.

"The Avia was modelled according to blueprints and old black-and-white photos. I used a panel modelling technique, which allowed me to go into the details more and I didn't have to worry about topology too much. Small details like spindles and rivets were painted onto the surface with Advanced Painter.

One important note is about the pilot. I don't like characters, so the pilot model is used with the permission of Anders Lejczak"

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"The composition here is very simple – I just wanted the aircraft to be as big as possible on the image. I will be creating a similar poster of it to the one I made for my previous aircraft image, *HAL Tejas*. The series of posters all share similar characteristics"

"Everything was rendered in one pass with an Alpha mask. The propeller was rendered separately with a 3D motion blur. To get better selections in Photoshop, I rendered additional images with the render mask's script to get separate colours for every part of the aircraft"

"There was a direct parallel light for the sun and Brazil's Domelight was used to simulate the sky. Around the sun I placed a sphere with a self-illumination material, which created highlights on the aircraft surface"

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Step by step: Building a futuristic city

City 2050 2009

A conceptual design for how a city might look 20-30 years from now. A mixture of new futuristic elements and more recognisable structures

Neil Maccormack is a freelance 3D artist and concept designer

Modelling, Texturing, Composition

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Neil Maccormack

3DArtistonline
Username: N/A

Personal portfolio site
www.bearfootfilms.com
Country Switzerland
Software used
LightWave 3D, Photoshop
Expertise Neil specialises in concept design and 3D futuristic environments

This image is something that at some point every artist will have attempted to create, I'm willing to guess. I had many ideas and thoughts about creating an environment like this. I tried to mix some large futuristic structures with some more recognisable buildings to add some realism.

I will describe the key elements in the LightWave 3D part of the image, such as scene setup, lighting, basic texturing, and the postprocessing work in Photoshop of painting, more texturing, colouring and compositing, which can then be applied to any image you are producing. The techniques are not specific to this image but are a general set of rules that I apply to all areas of my work.

Software used in this piece

LightWave 3D | Photoshop

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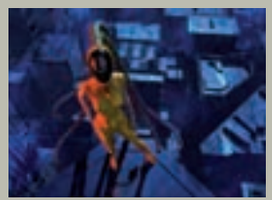
Artist Showcase

Neil Maccormack

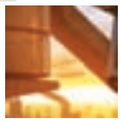
I am a 35-year-old freelance 3D artist and concept designer. I am originally from England but now settled and working out of Geneva, Switzerland. I spent years working in advertising and graduated from university with a major in Computer Science. My style is postmodernist Neo-Futurism meets grunge with a hint of sci-fi.

Green Man **LightWave and Photoshop (2009)**
An image based on some work I did for Marc Leidy's *Nothing's Safe*. All modelled and rendered in LightWave and then painted and retouched in Photoshop

Desert Station **LightWave and Photoshop (2009)**
This is an image for a future space station based somewhere in the desert. Heavily styled in Photoshop after the initial render in LightWave

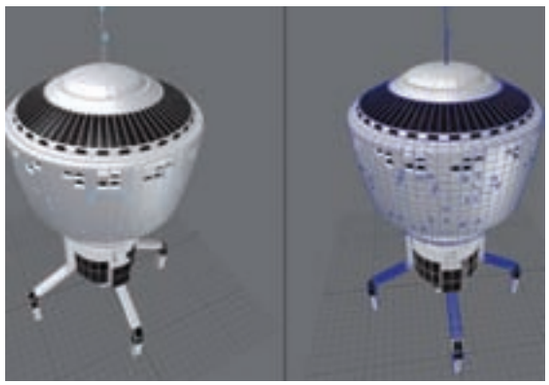


Rooftops **LightWave and Photoshop (2009)**
An alien-esque lady on top of a building overlooking a grungy future city. The building could well be one from the city being built in this tutorial

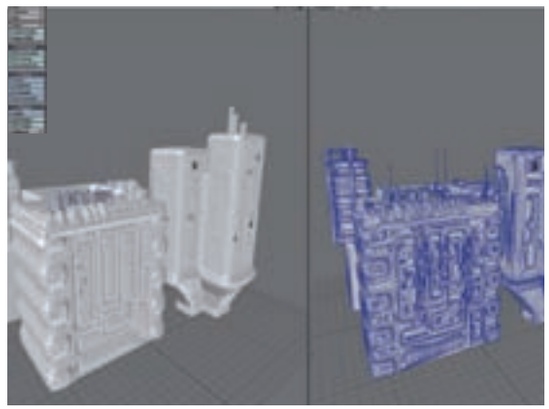


Concepts

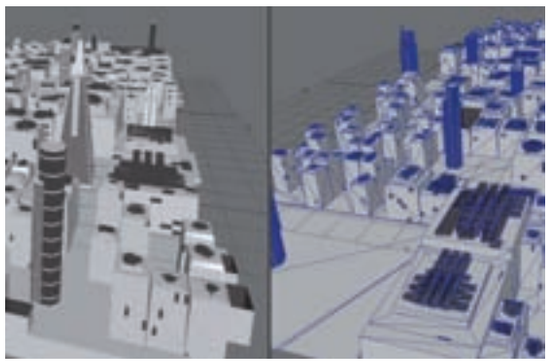
The desire to create a believable 3D matte painting



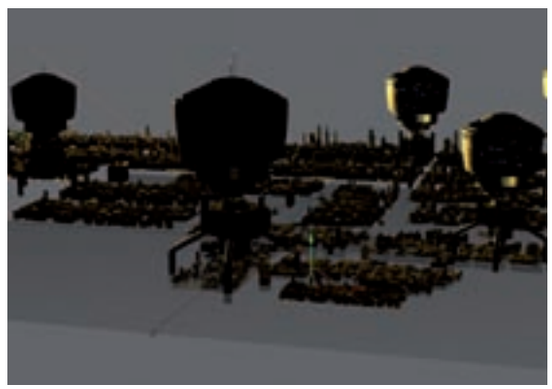
01 **The first buildings** to design were the large structures that would take up the majority of space in the city. I wanted these buildings to be partly based on the aliens in *War of the Worlds*, which had large cumbersome bodies and long legs. This suggests the buildings could even be moveable; however, in this case I simply wanted to portray size.



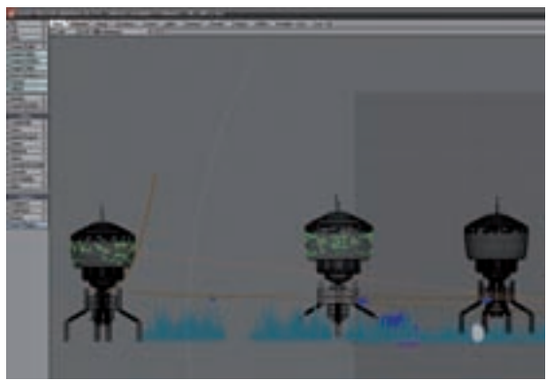
02 **The second layer** of buildings were based on a more normal design and model. I wanted these elements to be fairly high detailed and at the foreground of the image, yet still have some futuristic details visible that would retain that sort of 2030 feel to them.



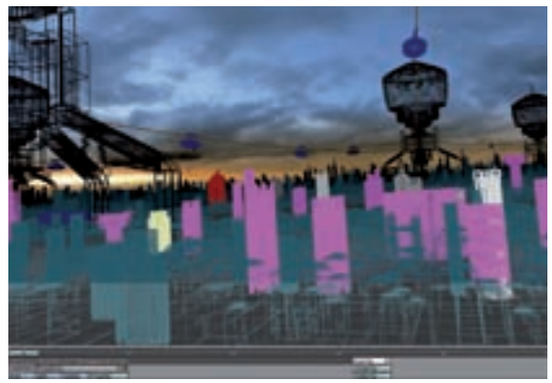
03 **The final elements** in the city would be made up of a mixture of low-resolution buildings and some very basic box structures that would fill in the areas between the high-resolution structures and the buildings in the distant horizon. I didn't want to have to have high-resolution buildings in the horizon where no one would ever be able to tell, and with the poly count rising all the time I used simple box structures.



04 **Here, we can** see the layout of the objects for the scene in LightWave Layout. Note how I used multiple instances of the same objects scattered around the scene. Each instance was rotated slightly or textured differently to avoid repetition. The most repeated structures are the low-resolution ones to avoid a high poly count.



05 **This is a** wireframe view from the left side of the city. The different-coloured wireframes denote the different objects so here it's easier to see the cloning of objects. The pink and red objects on the right side of the view represent the high-resolution buildings closer to the camera. The green objects are the filler buildings and the black ones are the larger futuristic elements.



06 **This camera view** clearly illustrates this point better to the eye. As the objects disappear from view into the mist, fog and the horizon, they lose contrast. This means you won't see any details modelled into these objects, wasting both memory and polygon count. You can see how using the larger structures throughout the image adds some continuity to the composition.

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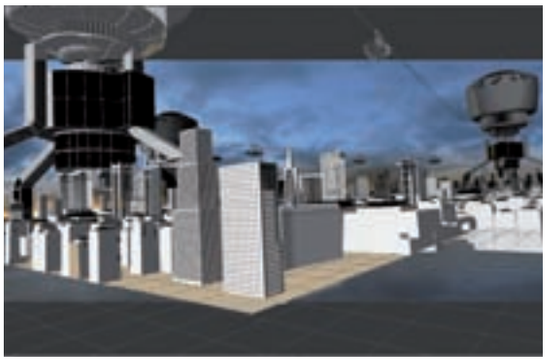
Lighting and rendering

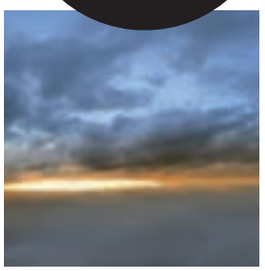
Adding atmosphere and colour

3 hours render time Resolution: 2,310 x 3,300

07 **Next, I added** scratches. As standard, I did this using a ready-made JPEG of intersecting straight lines simulating typical scratches on the metal (it's important to take into account the appropriate level for the tiling of the image). Additionally, I used an irregular brush to have an impact on areas where it is more likely that the armour is more damaged.

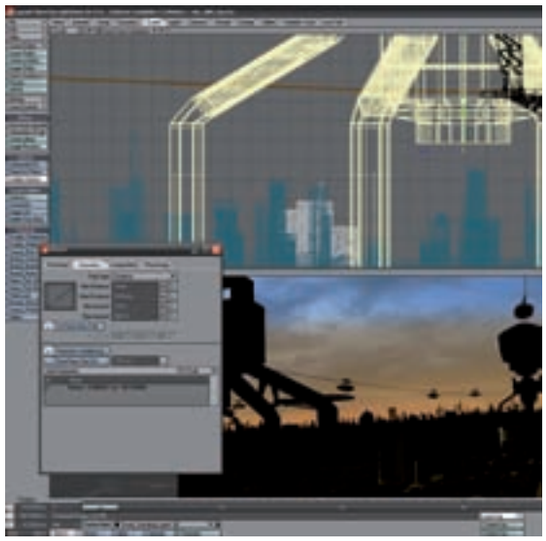


08 **This is the** front view of the scene with all the elements in place. One or two stock buildings were also added to give extra randomness to the structures and added details. You can see that really the only details to the buildings were added onto the rooftops. The sides and back wouldn't be visible to the camera, and those that were I knew I could paint onto in Photoshop after it was rendered and then cover with textures.



09 **For this image** I chose a late evening sunset. This instantly dictates the colour and position of the sun, which makes the lighting a lot easier. I then painted a sky background in Photoshop to be used as the background image, and placed my light over the top of where the sun was positioned in the image.

10 **The next phase** is to make some fog for the image. This adds realism and the idea that the city has a layer of smog covering it. In LightWave, you can do this by adding ground fog and volumetric fog the same as the background colour (our sky image). This means the fog then takes on the same colour as the sky gradient, which helps to add realism. This image should be rendered out as a separate pass to composite later in Photoshop.



11 **After rendering the** fog and adding the sky, I wanted to have some rays of sunlight shining across the city and through the legs of the larger buildings. I did this by using my main light source (the sun) as a volumetric light, which again would be rendered out as a separate pass and composited later on.

12 **Before I brought** it all together in Photoshop I needed one last render pass, which was my depth map. This let me accurately blur the objects further away from the camera, giving the impression of an accurate depth of field. I then used this pass as an alpha channel in the final render and then, using the Lens Blur filter in Photoshop CS3, I could tweak the depth until I liked it.

13 **Once I had** all my render passes compiled, I began to construct the final painting. The screenshot shows how my layers were constructed. I had a texture layer where, using matte painting techniques, I gathered some images of building textures to apply over the image to add more realism to the buildings. I painted the lights onto the buildings using a standard brush and then added some colour and contrast layers to give the image more punch.

Texturing and layering

To texture such a large scene with millions of polygons is a daunting task, but I knew I wouldn't have to texture every single object. I could lay textures out in layers in Photoshop and transpose them over the buildings. I rendered out a separate layer pass for Reflection and Specularity to ensure the building's windows had the correct levels of both. These layers were added in the final painting to complete the image.

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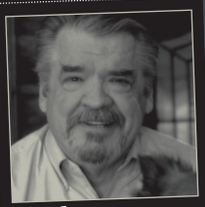
Software used in this piece

modo · Vue · Photoshop · Poser · Blender · Painter · ZBrush

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info



Don Webster

3DArtistonline
Username: London224

Personal portfolio site www.websterandsonsstudio.com

Country United States

Software used modo, Vue, Photoshop, Poser, Blender, Painter, ZBrush

Expertise Don's first model in modo was the Civil War submarine USS Alligator. He has modelled a series of scenes based around the Flemish styles of the 16th Century. Don spent 16 years in architectural CAD development.

Depicting a giant

Dora awaits in her tunnel 2008

"Dora is a 3D Vue composition on canvas of this wonderfully detailed German rail gun by fellow modeller Aleksey Kontsedalov"

Modelling, Lighting, Rendering

Don Webster is a retired chief operating officer of Nemetschek NA, architectural CAD software developer of Vectorworks

This tutorial will show how this canvas was created using basic skills and a strong concept. Strong images do not always depend on expert knowledge. This canvas project was a gift for a friend, Aleksey Kontsedalov, a wonderful modeller of WWI and WWII military hardware who lives in Siberia. It is based on his rail gun model of Dora.

I work in a 14 x 40-inch horizontal format for almost all my work. The model is wonderfully detailed and very horizontal, and at first you would think it a natural for a strong horizontal format. A side view only makes this an elevation with no real meaning, so I spent an hour just rotating the model around in my forced format. The problem was what did I want to achieve – showing off the model or creating a mood about this monster? I think all such weapons bring out the little boy in us and our love of finding things in dark, shadowy places, like hidden treasure.

My second thought was that there is little in the way of pictures of Dora. So there was my concept, Dora hidden in a tunnel awaiting use, as light streams down on her.

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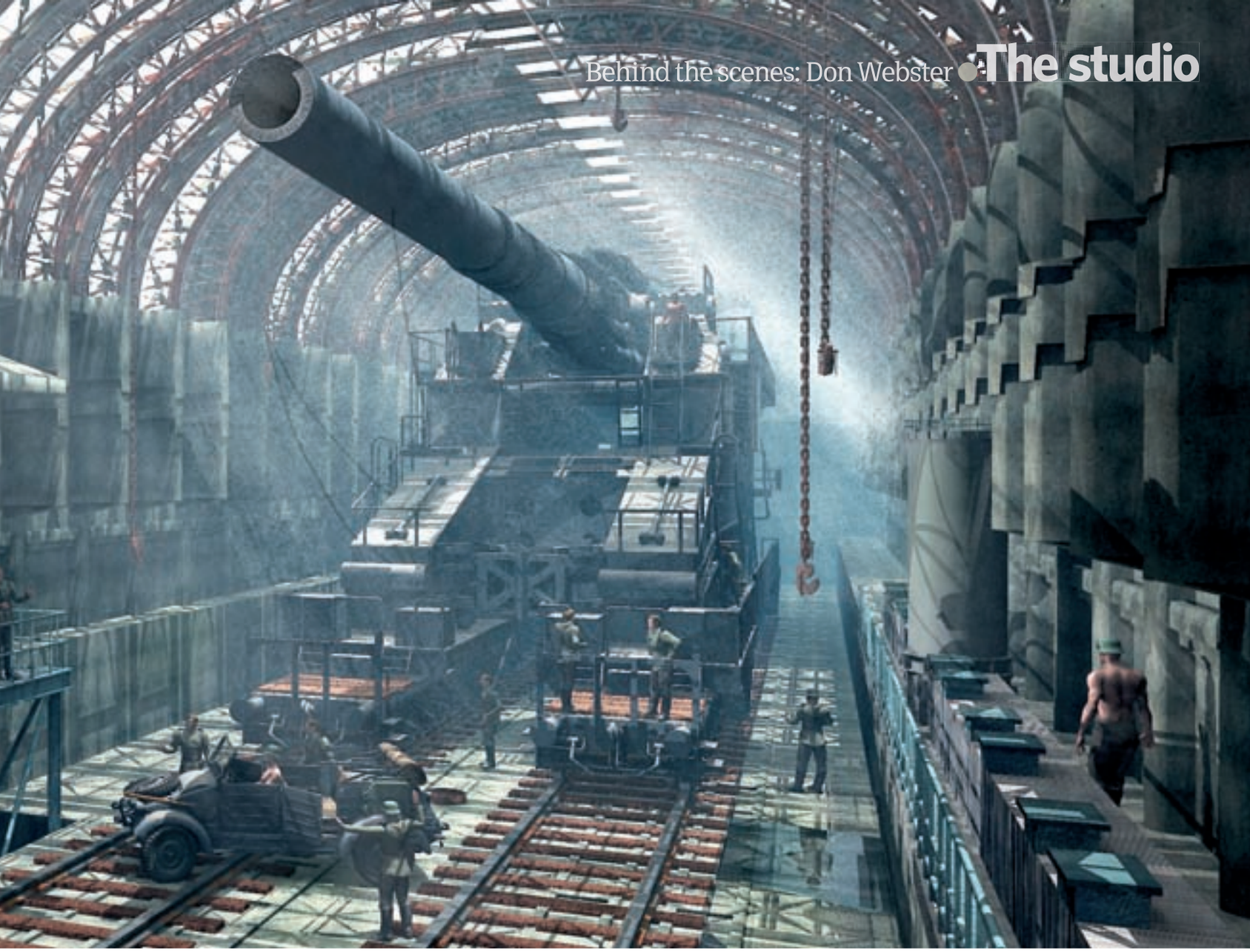
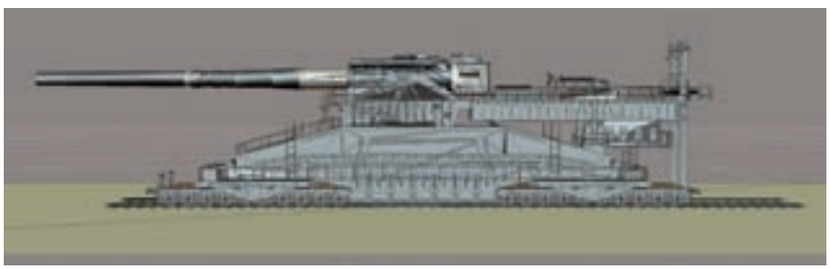


In this tutorial, I will go through the use of existing models for parts that are reworked by simple scaling and distortion to create new elements. We will be using Poser to develop a catalogue of soldiers to pick from or make adjustments to. Vue 6 Infinite is my canvas, while I make the composition on a 30-inch Mac screen. Getting a good look at a wireframe of this model is important, as I rotate it around to select possible camera angles. While I often start a work on my laptop, Dora is such a mass of lines in wireframe that it is difficult to work with on a small screen. This is a reason why I show Dora in the surrounding images with some shading.

We will take a look at texturing and atmosphere, which were rather simple yet very important, and finally Photoshop is used for some last-minute touch-ups. At the end of this tutorial, I hope everyone will see how some simple adjustments along the way allowed a good basic idea to come about, and with just some basic skills you can create an interesting image to be proud of.

01 Find the camera angle

Blocking my canvas in a divide of one to two thirds and moving the model to the side seemed to have the greatest possibility of looming out at the viewer. This also allowed for the entire model to come out of the shadow with the barrel and its massive opening in the foreground, distorted by the camera angle and sharper than the rest of the model A.



Hugging the right-hand side wall allows you to see the rear of the chamber and provides the wall to the left for details and openings. While this did not show off the detail of the model, it does set the right mood.

A Dora positioned to come out of the darkness, emphasised by a wide-angle camera view

Concept

All male artists are like little boys looking to find something in a cave or ruin, something like buried treasure! A massive gun lurking in the shadows ready to come out into the sunlight was my concept here.

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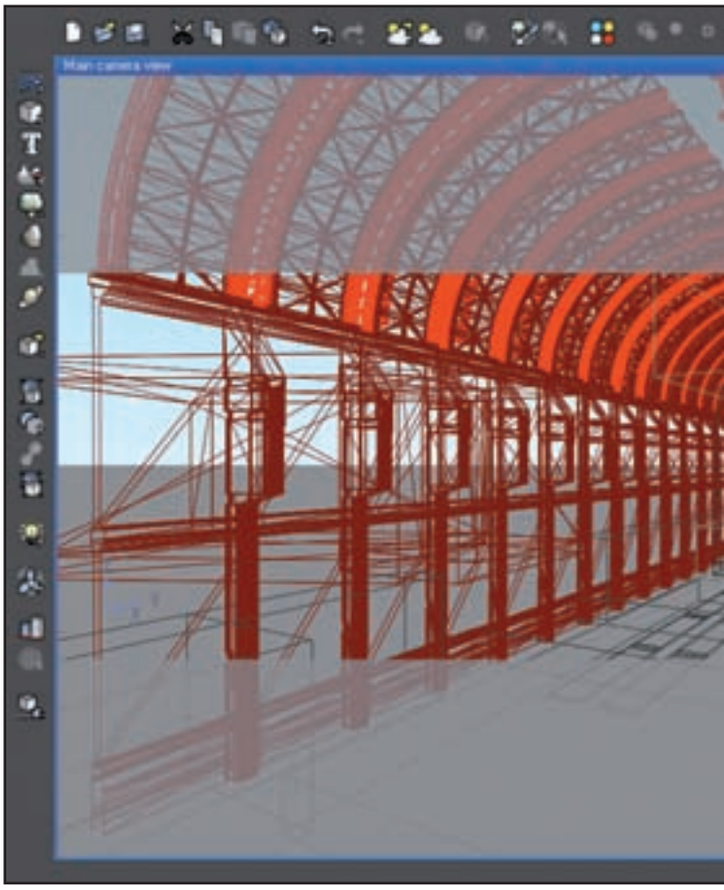
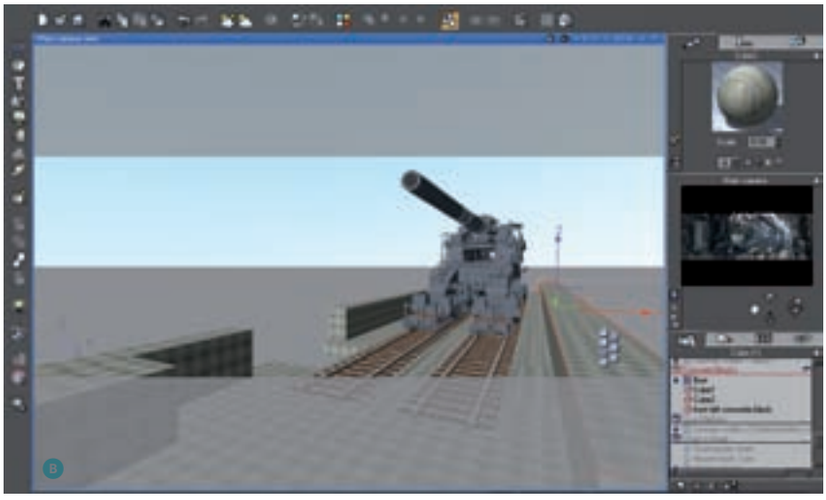
02 Create a basic floor and side support wall

Thinking about the submarine pens in France, I started out by simply blocking out a floor and side wall with an opening. I knew I would most likely go into my box of purchased assets and use framing from a warehouse or railroad station to create a roof of some type. The sub pens all had rails, catwalks, pipes, things hanging from the ceiling – all things I kept in the back of my mind. The actual polygon structure for the floors, etc, are done right in Vue, simple cubes that could be replaced later on with more detailed meshes in modo if needed. I often start applying a basic texture to help set a visual mood for me. A repetitive concrete pattern here links into my images of the submarine pens B.



B Use simple cubes to create a floor and support system for the roof structure



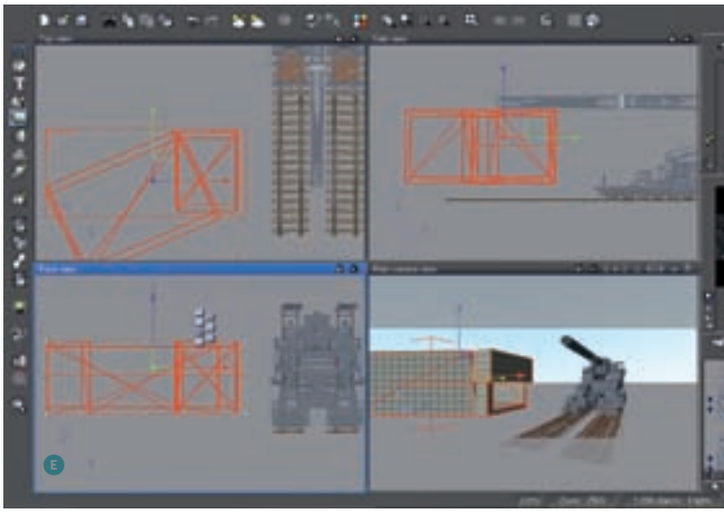
Solving problems

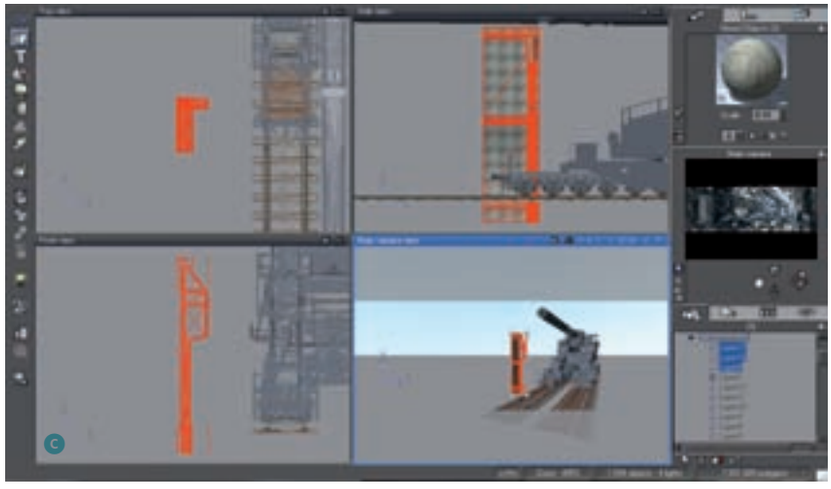
When I started to develop the girder system from existing elements, I used modo to delete polygons in order to form a single unit for duplication and exported as OBJ files to Vue. I could then resize to form a bridging hang-over that looked believable. With a single girder element now available, I started to set in place and duplicate down the tunnel, aligning to each wall support placed earlier.

Since the wall supports and girder system were vertical elements, this gave me a lot of control over where and how much lighting would come in. I simply turned off individual elements until I got the desired effect. As I applied this during quick renders, I found something lacking and decided to pull the two halves of the girder roof system apart by resizing in on the axis, creating a long open backbone to the ceiling roof. The effect was to provide light that played with the girders, and also create a light path from foreground to background.

03 Create side wall elements

Using elements from other purchased models, I resized to fit my needs by both scaling and distorting some of the elements to form a section of wall that would repeat in an interesting manner. Bunkers were made with concrete forms that had a strong repeating pattern on them, which I achieved with concrete texture tiling C. This single block structure with a large support projection at the top to handle some type of roof girder system had to be large enough to look correct, but also provide flexibility in the model to delete where I might want to have openings. Working with a single element like this, I had to remember that it was going to be





C Create a single repeatable side wall element that aligns with a roof girder structure

D Consider where to remove wall segments and form a viewing platform

E Develop a side tunnel entrance that adds a little mystery

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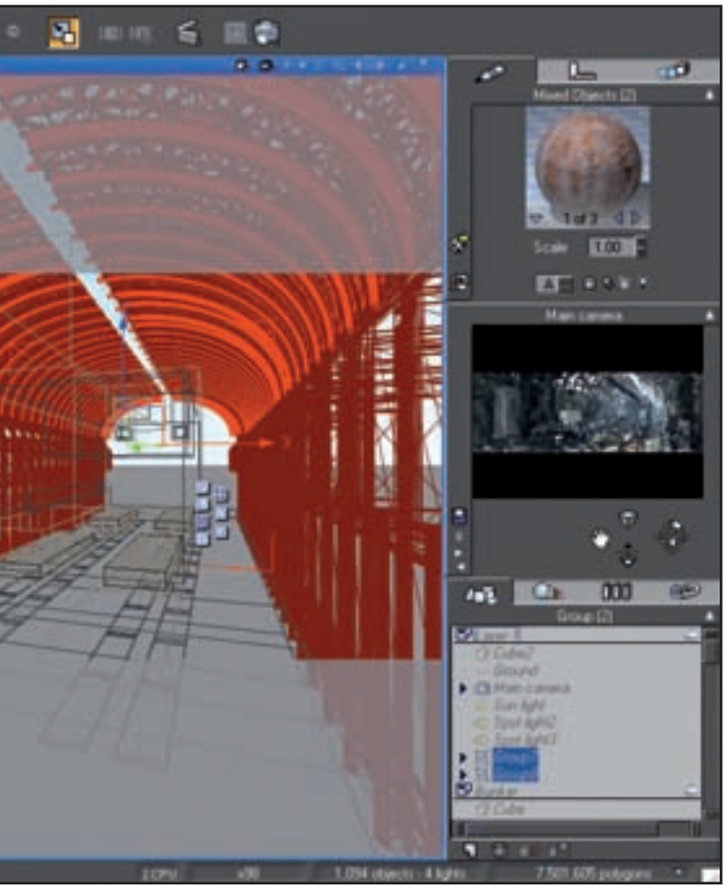
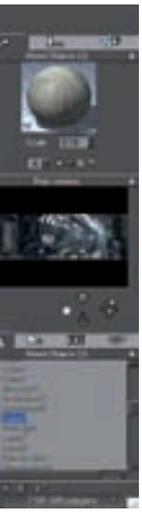




> All the great detail is not seen in this work, but it all adds up in the end to bring about an atmosphere to the scene

repeated many times, so don't go adding too many polygon details.

04 Add to the bunker structure

The camera angle remained promising at this stage with a nice (but not overdone) repetition in the wall support and girder structure. Quick renders showed me that the lighting would bring the necessary attention to Dora, but I wanted to add a little life into the scene using soldiers and other items and would need a viable way for them to have entered the bunker D.

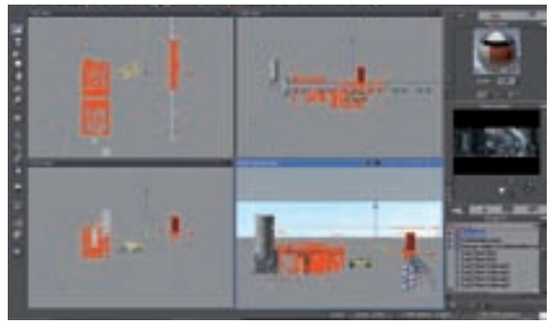
I had already made an opening to create some type of entry or viewing platform on the left-hand side and had only to resize the original wall cubes made in Vue to match the wall segments so they could be removed. The opening allowed for side entry and a lower area where one would have to climb up from to reach the track floor.

05 Side tunnel creation

Now that I had a viable opening, all I had to do was create a rectangle for the troops to walk in and see what was going on E. Inserting a cube and doing a quick render showed that it was just an opening and could have very well been a large window, as there was too much outside light, no control and nothing special added to the scene. Duplicating the cube several times and closing the end of one, I moved one to the top from an overhang, one remained in the same position as the opening in the side wall and the third rotated around about 30 degrees. This formed a tunnel that cut off any direct light, while it would allow for shadows to appear on the inside visible wall and maybe even shadows along the floor, depending on what was placed inside.

06 Railing, pumps, tanks and stairs

I wanted to have a few industrial-looking items in the foreground along with storage tanks, railings, etc, so once again I went to my parts bend and pulled out items that I could take apart, resize and mix and match to create just what I was looking for. While I knew I would be placing a few soldiers in the scene so that you could get a scale to this



monster of a rail gun, I decided that I would place a vehicle just in front of Dora as a reference. I also wanted to break up the track running straight into Dora a little. Aleksey had a number of high-command cars available, but I wanted a field car and he told me that he would model a Kübelwagen for me in his typical high detail and accuracy.

The railing was simple to pull apart and resize and allowed me to create a second, more industrial-style work platform and staircase leading down into a cellar of sorts. This worked so well that I placed some of these elements in a different scale along the right wall to break up the pattern looking straight back to the rear of the tunnel F.

07 Add a vehicle for size reference

Aleksey's models are all wonderfully detailed, and are available under Alex Koontz at TurboSquid. Aleksey is not an artist who creates scenes or any art for that matter, but his models are art in themselves. He loved researching these and modelling them in great detail so they can be used by those doing historical work. All the great detail (like Dora herself) is not seen in this work, but it all adds up in the end to bring about a feeling, mood and atmosphere to the scene. I'll have a think of how I might use this model in some future close-up where all its attributes can be appreciated properly G.

08 Balance all the elements

At this point the scene takes shape with most of the elements in place, but now Dora is overshadowed by the structure itself and the lighting is going to make or break this image. The texture I am using for the concrete also has a strong visible pattern. The question is whether it is too much or if it could be used to mimic the

Lighting and rendering

Now that everything is in place – and with most of the light controlling elements as individual objects that I can remove or even alter as masks – the development of mood can be controlled. Fog or haze, additional lighting to add just the right amount of key lights here and there, it all helps. More problematic is that the final scene is 14 x 40 inches, and often a small render for testing doesn't give you enough visual information to make a good decision. Is this the best angle to really show it off well and achieve the mystique I wanted? I tried a number of atmospheres in Vue, but in the long run used just basic volumetric lighting. I didn't want a photorealistic look to the work, I wanted it to be somewhat grainy, textured and even splotchy in areas. While Vue lets you create almost photographic realism, I like something different, something between fine art and illustration, my own look.

F Add a more industrial feel to the scene with storage tanks and railings

G Add an open Kübelwagen to provide a reference scale to the scene

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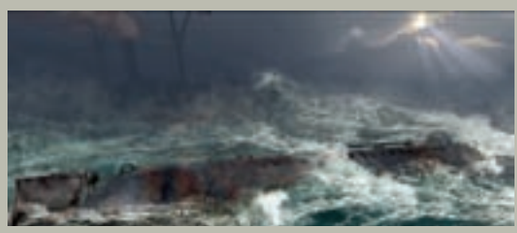
Artist Showcase

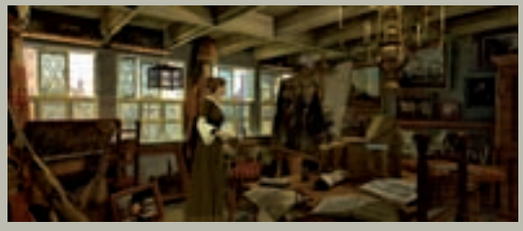
Don Webster

Now retired, my professional career has always been involved with imagery. An aerial surveillance officer in the Sixties, an illustrator supporting DOD in the Seventies and Eighties, a video/television director in the Nineties, I finished my day-to-day work as the COO of an architectural CAD software development firm.I love 3D, while at 62 I have so much to learn and enjoy seeing what younger talent are capable of these days and use it to push me to try harder. Appearing in *EXPOSÉ 7* and the wonderful magazine of 3D Artist makes me feel accepted, especially that an old 3D newcomer is welcome among so much talent.



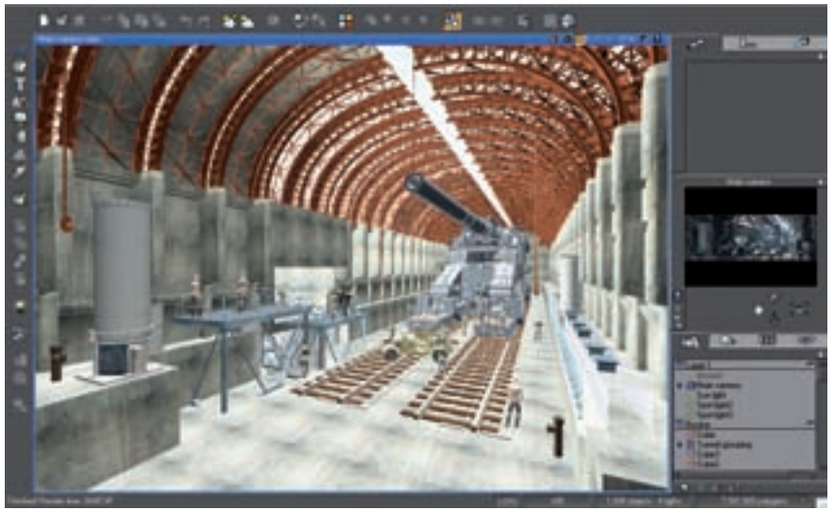
U.S.S Alligator Lost at Sea **modo, Photoshop, Vue 6 Infinite (2008)**
The first Union Civil War Submarine was my first modo modelling project. Created for the Graveyard of the Atlantic State Museum in the outer banks of South Carolina where so many ships have gone down over the centuries, the project forced me to start using modo

Forgotten V2 **modo, Vue 6 Infinite (2008)**
While I model almost all of my items these days, I still love to create images using Aleksey's great models. As a young boy one of my first plastic models was of a V2 rocket, so I was hooked when Aleksey finished this one of a V2 laid over on its side, deserted

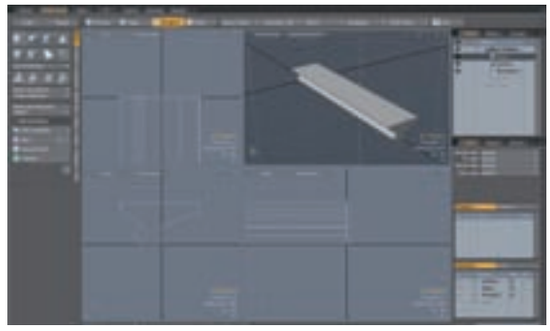


Brugge The Studio **modo, Poser, Blender, Vue 6 Infinite, Photoshop (2009)**
My latest and largest effort, having modelled all but the books and the Poser figure, this is one of a collection of works I am doing in support of a series of architectural models called Brugge for sale on Cornucopia3D

repeated patterns that you see on the old concrete-formed structures. I have removed a lot of the girder skin because the girders themselves will mask the direct light, which I am able to control. I would rather have the light and block it instead of the other way around. The ceiling opening did worry me a little, so I created a girder in modo to reshape as needed if I wanted to bridge across the two roofs in selected positions H.



H A quick look at how things are shaping up with almost everything in place



I Make a simple girder in modo as a light mask for the ceiling spine

Textures

Textures for this project was the easiest part – grey for almost everything except the walls. I used an old grey paint that I had and used variations of it for Dora, the railing, storage tanks and other metal items. The only question was with the repeated pattern caused by the tiling of the concrete image that a few feel is too much. I concern myself with shadows and haze to add the mood that I want from the lights. For us old folks, World War II was black and white and so, if anything, I will desaturate the colour in the final render a bit.

09 Make a quick girder

With a few exceptions, I have been able to create this scene using existing models used directly or pulled apart and resized in some form I. Now I want to create a girder shape to use as a light mask for the ceiling that looks convincing as a structural element. The existing girders do not have enough mass to them to really provide what I want. modo has been a gem in allowing me to import and pull apart these 3ds Max and OBJ-based models for parts, and now to create a simple extruded polygon. Nothing special here, just something that looks like it's made of metal and has a few nice strange angles to play with the light.

10 Create an army

With a workable composition I go to Poser and start creating a collection of figures, which I believe will be useful poses for the composition. I find that saving these as Poser files works best for me when I start importing them into Vue. Rather then saving each one with a 'bald head, shirtless, holding something' file name, I simply give each a number for future reference in a Photoshop file with some basic lighting. At the scale they will appear at in the render, I don't worry about them looking all the same in hair, face, etc. I'll simply make a few changes in postproduction when I see how the entire scene pulls together J.

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I Create a collection of Poser-based soldiers for possible incorporation into the scene

11 Poser-based grunts and officers

Working on an old Mac Pro Dual/Quad PPC, I'm right at the limit of being able to use Poser figures in quantity and still not draw my system to a halt. But even exceeding 1,500 objects in Dora, I'm able to import my Poser selections in this work and be able to render without much problem. In other cases I simply use PNG files of the individual Poser renders, or when possible import them into the Vue scene and render only that selected figure. The scale and positions of the figures in this scene do not make facial detail a concern.

12 Did I make the right decision?

A quick preview render provides just enough insight into the lighting to let me know that I'm on the right path. The gritty look of the preview is desirable, and I often consider using both a preview and final render together in some mixture as

J Adding soldiers to humanise the scene also helps to provide a scale reference on just how large Dora is

layers in Photoshop. I must remind myself to look at the quick render window to see what is really going to be seen and not get distracted by the top and bottom portions in the camera window view as I make decisions. But even in preview the shadowing looks good, and moving the two Spot lights outside the tunnel allows me to position the shadows as I want, especially from the barrel casting a shadow almost parallel with the ceiling opening. Not wanting to light up the end of the barrel and distract from the lighting effect along the barrel length, I will simply select the barrel end and slightly lighten and increase its contrast. While satisfied, I still wonder if there is something else or a better angle now that I have everything in place.

13 Extra items

Before moving on, I want to try a few other textures and major items within the scene. The addition of a locomotive and a rougher texture for the walls is my main interest, but the locomotive doesn't work in adding a better reference scale item, and it turns out Dora was pulled by a diesel that looks more like a passenger car K. The texture again looks interesting in preview, but a final render shows it up to be too busy.

K Try out a different texture and add a large locomotive for a render test

L Light needs to hit the floor, so should be at a high angle

M A basic volumetric atmosphere was used for the overall lighting with Spot lights

6 hours
Render time
Resolution:
6000 x 2083

N Take a look at fog and haze in the Atmosphere editor to add to the mystique

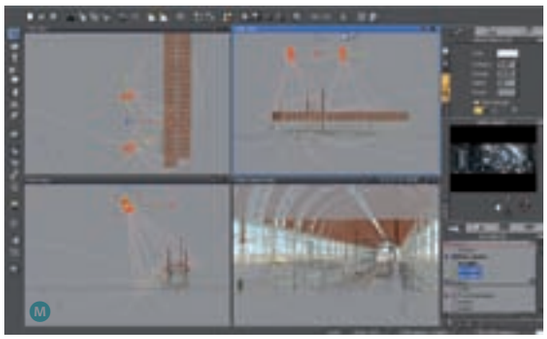
O Experiment with the settings and create a scene that is personal to you

14 New angle

I removed the right-hand side walls and swung the camera around to better show off Dora and her detailed structure. The new angle achieved the desired effect of showing off both the model and the scale with a more elevated view of the soldiers on the platforms and walkways, but the loss of depth, the tunnel effect and lighting totally removed the unique mood and mystique that the original camera angle provided. It's okay, though, as I will simply create another view in the future.

15 Add two Spot lights

Here, I started off with one light and added a second. I found that this was enough to accomplish what I wanted. In tandem, I move the Spot lights together to achieve not so much the light on the object, but the light rays and shadow angles that were most intriguing against all the objects. Of particular interest is having the girders shadowed against the concrete floor, so the light needs to be at an angle that's high enough in order to hit the floor. The right-hand side walls will easily be covered by the rest of the roof structure L.



16 Atmosphere

As an interior scene for the most part, the concern is with ambient light and volumetric effects for mood. In this case I kept it simple with a basic volumetric/ambient occlusion standard boilerplate atmosphere that came with Vue 6 Infinite M. There are many open panels to the roof, but at an angle that doesn't provide the camera any direct view of a large opening that would appear as a hot spot. I had considered doing Global Radiosity but between another pressing project as well as really liking the gritty look I was getting, I saved that idea for a rainy day.

17 Is fog really necessary?

The first thing I think of with bunkers and tunnels is fog or mist creeping along the floor, and at this stage I wanted to see whether it would be lit up effectively by the sunlight or Spot lights N. I simply could not get the effect I wanted due to the small scale of the scene; there just was not the distance in the scene like you would have in a mountain scene. I decided that if necessary I would do something in postproduction in Photoshop using a fog brush.

18 Spot lights

I found that a power setting of 100 on each Spot light was enough to achieve the effect I wanted as a volumetric light O. I set each up to ray-trace hard shadows.

You can mix the preview and final renders, even a Global Radiosity render, but each effort must stand on its own.

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Maya
Lance Hitchings
www.hitchingsdesign.com

Lance is our Maya master and in this issue he takes an in-depth look at Render Passes, the new mental ray feature that comes with Maya 2009

3ds Max
Ryan Knope
info@ryanknope.com

Ryan is our architecture and 3ds Max expert. In this issue he tackles the problem of creating a realistic neon sign to decorate the outside of a building

Maya: Let's get rendering

"How do I make use of the new Render Passes feature in Maya 2009?"

In Maya 2009 Autodesk introduced Render Passes, which is actually a feature of the new version of mental ray.

Render Passes allows you to create separate renders, such as Diffuse, Specular, Reflective, Refractive, etc. You then composite these passes together in Photoshop or another compositing application. Previously, this was accomplished using Render Layers (which is still available); however, Render Passes does this in a completely different fashion.

With Render Layers, you needed to create a separate render layer and assign material overrides for each pass. You then needed to render each layer as a separate and individual render. But mental ray takes advantage of something called frame buffers. When rendering a normal Beauty pass, Maya will calculate the diffuse colour, the indirect lighting, the reflections and refractions and so on, storing each of these calculations in a frame buffer. Maya then composites this data on the fly and produces the final Beauty render.

When using Render Passes, Maya creates a separate render from the data stored in each of the frame buffers instead of compositing them together into a single render. As a result, all the passes are rendered simultaneously as a single render instead of one at a time.

01 Convert older mental ray materials

Since Render Passes are a feature of mental ray, in the Render settings you need to select Render using: mental ray. This will expose the Passes tab. Oddly enough, although all the Maya material nodes are compatible with Render Passes, only a few of the mental ray render nodes are compatible. These are the materials that end in _passes and include mi_car_paint_phen_x_passes, mi_metallic_paint_x_passes, mia_material_x_passes and misss_fast_shader_x_passes.

If you have an older scene that uses the older versions of these materials, you can easily update them to the newer materials. With the older material selected, scroll down in the Attribute Editor to the bottom to see a tab labelled Upgrade Shader. Open this and click Upgrade Shader to create a new material that retains all the attributes of your previous material A.

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CINEMA 4D
Daniel Lovas

http://lovas.cgsociety.org/gallery/

Daniel is our resident CINEMA 4D and sci-fi specialist. In this issue he discusses how to add 3D lighting to a 2D photographed building in CINEMA 4D

Vue
Dominic Davison

www.3dartistonline.com/user/Dom1

Dom is one of the top people at creating realistic landscapes. In this issue he explains how to simulate clouds on a windy day in Vue

Poser
Paul Francis

www.3dartistonline.com/user/StormdrainGFX

Paul is a former modeller for programmes like *Red Dwarf* and also a photographer. He brings those two perspectives to the Poser world, this issue creating a futuristic room

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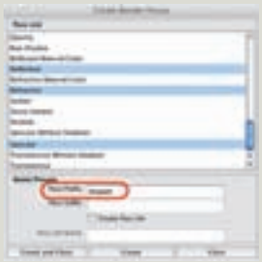

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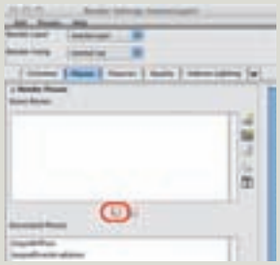

E

02 Set up the passes

In the Render Settings window, select the Passes tab and click on Create Render Passes B. This opens a new window with a selection of different types of passes available. If you're using mr materials, you'll only have a limited selection of passes that are compatible. For instance, the mia_material only can use the following passes: Beauty, Diffuse, Direct Irradiance, Indirect, Reflection, Refraction, Specular and Translucence. Select multiple passes holding down Cmd/Ctrl C. Typing a name in the Pass Prefix or Pass Suffix slot will add that name to the beginning or end of each render title. Click on Create and Close to get back to the Render Settings window. The passes you selected will now be in the Scene Passes section.

D. In order to render out the passes, they must be moved to the Associated Passes section. With the passes still selected, click on the button to move the passes. You're now ready to render E.

03 Ready to render

To create the Render Passes, you must use the Batch Render. Maya will create a folder for each pass in the Images folder of your project. The names of the folders will reflect the pass name and whatever you added in the Pass Prefix or Suffix. Each folder will contain the render for that pass.

Render Passes are not meant to entirely replace Render Layers. Here, I've used Render Layers to also create an Ambient Occlusion pass F, which can't be done in Render Passes if you're using mr materials.

04 Put it all together

After bringing all the rendered passes into Photoshop and combining into a single document, I've set the blending modes for all layers to Screen – with two exceptions. I've set the Ambient Occlusion layer to Multiply and the Beauty layer to Color. The use of the Ambient Occlusion layer, the adjustment layer G and the copy of the reflections layer gives me a different result from what I could have achieved by rendering a single Beauty pass.

This should give you enough info to get started with Render Passes, though there is a lot more to the feature. Contribution maps, render tokens and custom frame buffers are but a few of the new features, plus the ability to export precompositing data to the Toxik compositing application.

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Poser: Future room

"I've downloaded a standard room shape model but want to give it a more futuristic feel. How can I change the material properties of the walls and floors so that it has that white plastic future look?"

It sounds easy – just make a white material and off you go! Except there's more to it than that, of course. Anyone who's ever seen *2001: A Space Odyssey* will recall the dream sequences with white figures in a white room with white light all around. It's actually really hard to pull off convincingly. If you search out the work of 3D artist Franz Steiner, you'll see the effect executed rather well. Take a good look at materials around you and note the difference between, say, white paper and white plastic. Shiny plastic has sharp highlights, the plastic bumper on your car has soft highlights, etc. In Poser there's a place called the Material Room, and it's there we need to go if we want to get our hands dirty and understand how materials work within the program.

Poser has a huge range of users, a lot of whom are happy to use the models and materials they've bought and never see what's under the hood. But if you want to go further, in the Material Room there are an infinite variety of combinations and options to help simulate any material you can imagine, and some you probably can't!

Spaghetti junction

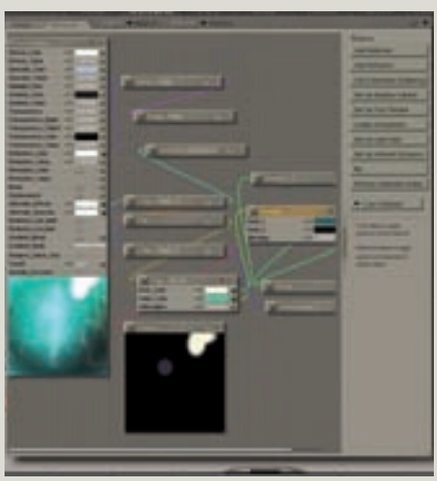
The first time I saw this, I nearly made my excuses and left. The almost limitless range of options in the Material Room comes at a price: complexity. Luckily, not all materials are as complex as this, and once you understand the characteristics of the material you want to simulate, you can focus in on only those options you need. There are two interfaces in the Material Room; to access them, hit the Advanced or the Simple tab at the top of the preview.

Plastic fantastic

We want to simulate shiny, hard plastic. I'm looking at the lid of my scanner while writing this, which is exactly what I'm after. We don't need a Bump map on this occasion, as I want the plastic to be smooth. However, just as in any other 3D program, you can use the Bump option to create detail in your scene without any modelling, and in Poser you can do this from the Simple tab in the Material Room. I set the ambient colour to white initially.

Under the bonnet

I then decided it looked a bit better with a slightly straw-coloured tint. With the Colour Picker you can set it any colour you like. Under the Advanced tab, I set the Diffuse Value to 5, Specular to 0.4, Highlight Size to 0.2 and Reflection Value to .75. A quick test render showed the Diffuse Value was too high, so I reduced it to 0.6 – this was much more like the effect I was after. I thought I'd try using a Bump map on the walls to make tiles.



An example of just how complex – and scary – the Material Room can get. Fortunately, not all materials are this complicated!

The test render to get the off-white colour just right (digital magnolia)

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3ds Max: Flashing signs

How do I create an animated neon sign for the outside of a building?

I am using 3ds Max 2010, but most elements of this Q&A can be applied to other applications. While the answer to this question seemed very straightforward at first, I did run into a bit of a snag with my first set of animated materials.

I went through quickly and created a test with keyframing the Self Illumination intensity of the Arch & Design material. This worked well in the viewport and when I rendered single frames. However, when I rendered the entire set of frames it would stick to the intensity of the first frame throughout the processing of the render set.

After pondering for a bit about the new problem at hand, I came up with the possibility of using a blend material with sub materials of on and off neon properties. This worked, thankfully.

Another important thought to keep in mind is how these signs actually work and are put together. If the animated sign is further away from the camera, then this is a lot less important.

Much of the time there is a flicker from a faulty transformer. Paying attention to the inlets and outlets of the neon tubes is also quite important.

Modelling the sign

The sign base was modelled by extruding and capping a spline. Often the base is a shiny painted surface or brushed aluminium. I used the Arch & Design brushed metal preset. The neon tubes are all editable splines, although there are two objects per tube. The outer object represents the glass of the neon tubes and the inner object represents the gas when glowing. This is essential to having a glassy look when the neon sign turns on and off. There are also sealing caps where the neon tubing enters the sign base. These are simply chamfer cylinders with a rubber type material.

Neon material setup

Start off with a Blend Material. In Material 1, I created a standard material 100% diffuse black. For Material 2 I used an Arch & Design material. Self Illumination (Glow) is turned on, along with Visible in Reflections and Illuminates the Scene (When Using FG). The Luminance setting values are dependent upon which type of exposure control you are using. In my scene I have an MR Sun set up with Outdoor Daylight, so I used a value of 99,000 with Unitless checked. Pick your lit neon colour in the Self Illumination tab. There you go, the neon materials are now set up. In the screenshot at the bottom left, you can see the Material settings.

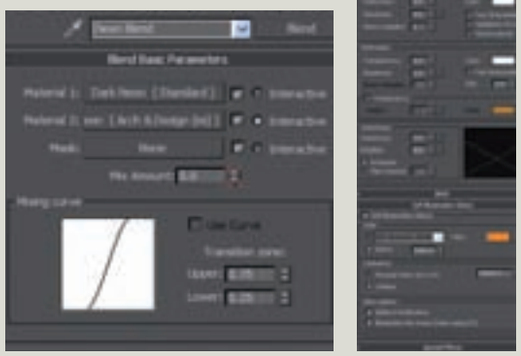
Ramp this value up and down with Auto Key on to animate your neon

Keyframing the animation

To keyframe your neon, turn on Auto Key. Find the spots where you want to turn the neon sign on and off and ramp your Mix Amount value up and down accordingly. Once a few keyframes are created for each Intensity value (using Mix Amount in the Blend Material), you can copy them along the timeline with Shift and drag. You will be able to find the finished animation and supporting .Max files at www.ryanknope.com/3dartist.

Keyframe timing. Keep your off and on keyframes close together

Make-up of the sign model



Material properties for the animated neon

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CINEMA 4D: Turning day into night

"How do I add façade lights to a building photographed in daylight?"

The problem is well known, especially among people doing architectural visualisations. Your client or your boss asks you to prepare a night-time light study of a façade of an existent architecture. Since it is only a light study project, the budget and/or deadline usually won't allow you to solve the problem the obvious way, which is to create a precise, textured digital 3D model of the outside of the building and its surroundings, and then light the façade properly in CINEMA 4D.

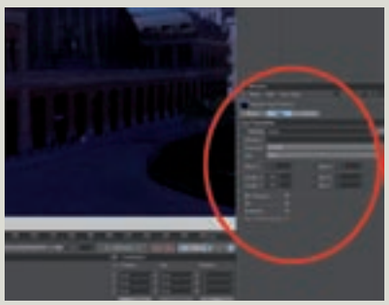
Instead, you're usually given only the spatial (3D) information regarding the projected outdoor lighting setup (positions and directions of the light sources) and a photograph of the building itself (usually a day-time shot, to make things worse...). If you're lucky you might be given additional information regarding the types and intensities of the light sources. Otherwise, when planning your project timeline, consider additional wasted time on the trial-and-error procedure until your client is satisfied with the result. So how will you do it? Force 3D lights to light a complex object that is, in fact, only a 2D photograph?

The secret here is that you are actually going to build a 3D 'model' of the building – but it's going to be an extremely simplified model (in many cases, a basic deformed cube or just two vertical planes might do the job) and it won't be visible in the final scene by itself. It's going to be camouflaged by projecting the background photograph on it from the camera direction, and its sole purpose will be to create correct shapes of the lit surfaces of the façade. The scene will consist of the dummy 3D object, the lights, a camera and a background object.

You will have to prepare some materials in CINEMA 4D. One of them will be used as a night-time photo for texturing the background object, while the other one will be the original photo that you might slightly overshoot in your image-editing software, and it will be visible only in the areas lit by the CINEMA 4D lights. You can use the same background image for both materials and get the desired appearance by tweaking the corresponding Material settings. The next steps will consist of creating the dummy 3D object itself, adding a camera and trying to do as good a camera match as possible.

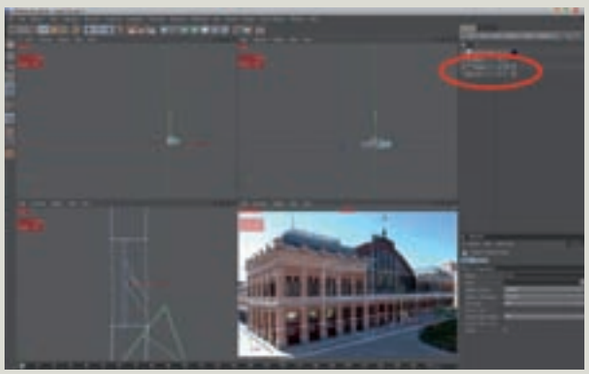
01 Prepare the materials

Create a new material and name it 'Back'. Deactivate all the channels except for the Luminance channel. Set the Luminance colour value to 154, 171, 255 and its Brightness value to 50%. Now load the background photograph into the channel as a texture and set the Mix mode to Multiply. Copy the material and rename the copy to anything you fancy. Activate its Color channel and load the background image as texture as well.



02 Prepare the background

Add a background object to the scene (Main Menu>Objects>Scene>Background) and drag the Back material from the Material Editor to its icon in the Object Manager. If you click at the object's Texture Tag icon in the Object Manager now, you will notice in the Attribute Manager that the projection has been automatically set to Frontal. A rendered test should now look as if the photo was taken at night.



03 Prepare the dummy object

While as a modern architect you might not like the rectangular architectural forms, when doing a visualisation job of this kind you'd be very happy about them, as they simplify your task a lot. Add a cube to the scene and make it editable. Change the size of the cube so that the x and z sizes correspond to the actual size of the building (check the file with the disposition of lights). Position the camera at an approximate distance from the model.

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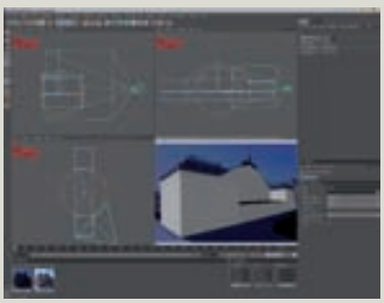
About the resolution

If you're serious about 3D projects, you are, among other things, probably used to creating your final render of a static (non-animated) scene in large resolution, usually 3,000 pixels along the long side of the image. However, as with any visualisation project involving compositing of 3D elements over a photo or live video footage, it doesn't make sense to overdo the resolution. For your final render it shouldn't exceed that of the photo used for the compositing! I'd even advise that you set a slightly lower res (75% or so) then enlarge it to the photo later. You'll get a more convincing compositing, since no photographic lens can match the sharpness and detail of a CG rendering.



04 Camera matching/adjusting

Camera matching means adjusting the position and parameters of the camera so the 3D object (cube) matches the object in the background photo. In some cases, depending on the lens used and available information about the shot, it'll be almost impossible to do a 100 per cent camera match, so you might consider deforming the ex-cube (let's call it the dummy object) slightly, which is okay as long as you aren't overdoing it.

05 Correct texturing of the dummy object

The deformed dummy object needs a special texture, so drag the second material you created to the dummy object's icon in the Object Manager. Now select the Texture tag and change its Projection setting to Camera Mapping in the Attribute Manager. This step is very important. If you render the scene now, the dummy object should appear invisible (ie absorbed into the background).

06 Add lights, rendering and the final touches

Now add the light sources to the scene according to instructions from the client. Depending on the complexity of the façade, you might add more rough extrusions to the dummy object or (as in my example) add extra lights to get the shadows correct. Try to remember that this is not an exact science and no one is going to look for fakes if the final result looks convincing enough.

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Vue: Sky high

How do I create an animated sky with scudding clouds like on a very windy day?

As well as producing still renders, Vue is also a powerful animation tool. It has the ability to animate objects, materials and the weather. It also allows the camera to fly through a scene by following a set path. This is controlled using the Animation wizard. Objects can be animated by changing their appearance at different stages of an animation. For example, a tree or plant can have its branches or leaves move with the wind. This function is found in the Atmosphere Editor. Here you can adjust the wind intensity and speed, as well as many other settings.

In the three-stepper we show clouds moving across the sky. There are many types of clouds to choose from in Vue. They can be added by loading the ready-made atmospheres or from the different cloud layers. Spectral clouds look more effective in animations, as they have more thickness compared to volumetric or standard clouds. They have a more realistic appearance because Vue imitates the way light interacts with the water molecules of the cloud. The downside to using spectral clouds is they only work in spectral atmospheres and take longer to render.

In the Cloud settings you can change the appearance, height and density of a cloud. The easiest settings to use for our purposes are found in the Cloud Animation control. Here you can change the Velocity of clouds as they travel across the sky. The Direction setting is like a compass, showing the route the clouds are taking. The final setting is the Rate of Change, which changes the shape of the cloud either rapidly or slowly. You can always add more cloud layers at different heights, altering their speed and rate of change for even more dramatic results. As with most features in Vue, experimenting with the settings is key to finding surprising outcomes.

01 Initial setup

First load a new atmosphere. For this tutorial I have chosen Santa Monica, which is found in the Daytime collection. This is a spectral atmosphere with a simple but nice layer of clouds. Spectral clouds have a cloud layer with more thickness compared to volumetric clouds, so they look more dramatic when moving across a sky. I have positioned the camera looking upwards to get more of the sky and clouds in the scene.

02 Cloud Animation settings

Next, we need to adjust the Cloud Animation properties. Select the Atmosphere Editor (F4) and choose the Clouds tab. In terms of animation, the most important settings are in the Cloud Animation control in the bottom left. Set the Velocity to 2 and leave the Rate of Change at 0 unless you want the cloud to change appearance as it moves, and set the Angle to 218.

03 Render Animation settings

Select the Animation Timeline tool and then the Render Animation Camera tool. Select Render Sequence and set your end time. For this tutorial I kept Render Quality at Final and Frame Rate at 24 frames per second. The resolution, as with still images, will take longer if at a higher setting. Now select Render Animation and wait for each frame to render.

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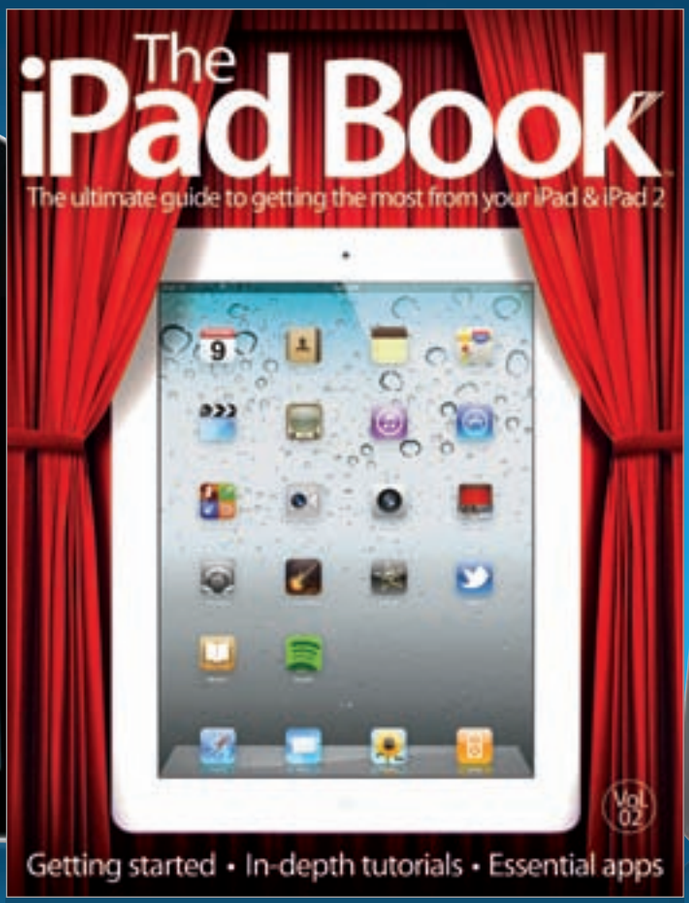
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Although you can output single frames in high-resolution, this tends to reveal the limitations of the models so animation is the better option

iClone4 Pro £140

Duncan Evans takes a look at the all-in-one character, scene and effects rendering and animation package

If you read our feature on Machinima back in issue 8 and felt the urge to create your own video features, then here's the perfect package to make them with. iClone4 Pro supports characters, texture modification, scene files, ZBrush imports and image-based lighting, but it isn't really a 3D renderer. It also features animation paths and keyframes, video objects, particle and atmosphere effects, but it isn't really a video-editing program. Instead, it's a combination of all these things. And that's one reason why, despite being on PC only, it has an idiosyncratic and fairly busy interface.

The starting point is the range of tabs along the top of the main display window, which covers Project, Stage, Set, Actor, Head, Animation and Export. Stage sets the type of environment being used, whether that's a noninteractive 2D background, an image layer that can be manipulated, a full 3D scene and then also atmosphere, fog, lighting and camera effects and settings. Sets are physical 3D props for use in the environment. There's a range of characters: five male, four female, a small child, plus some nonhuman figures as well. These can be loaded from the Content Manager or imported as iClone's proprietary Avatar format. And here's the kicker. Much like DAZ and Poser have driven a mass expansion in outfits, textures and character morphs, iClone also has an online store where additional materials can be bought. If you create and export something then it can also be sold on the store, with Reallusion netting 50 per cent commission.

On to the next tabs and you might think Actor and Head should be in the same basket, but no. Actor allows the Avatar characters to be loaded and then manipulated or added to with clothing and accessories. There are some issues here that are fairly basic compared to DAZ Studio/Poser, such as hair and clothing. Each Avatar can have a persona loaded, including ones designed for a different character. Personas can also be imported and exported as AML files, although to edit a persona script you will need an XML editor. It's the ability to load third-party outfits from the store that will extend the longevity of the program, though. Interestingly, you can import photos and change them into face textures or add any of the built-in faces to the currently loaded Avatar, regardless of sex or age. Also, there's interoperability with ZBrush as well, enabling the head to be tweaked in ZBrush and then reloaded back into iClone.

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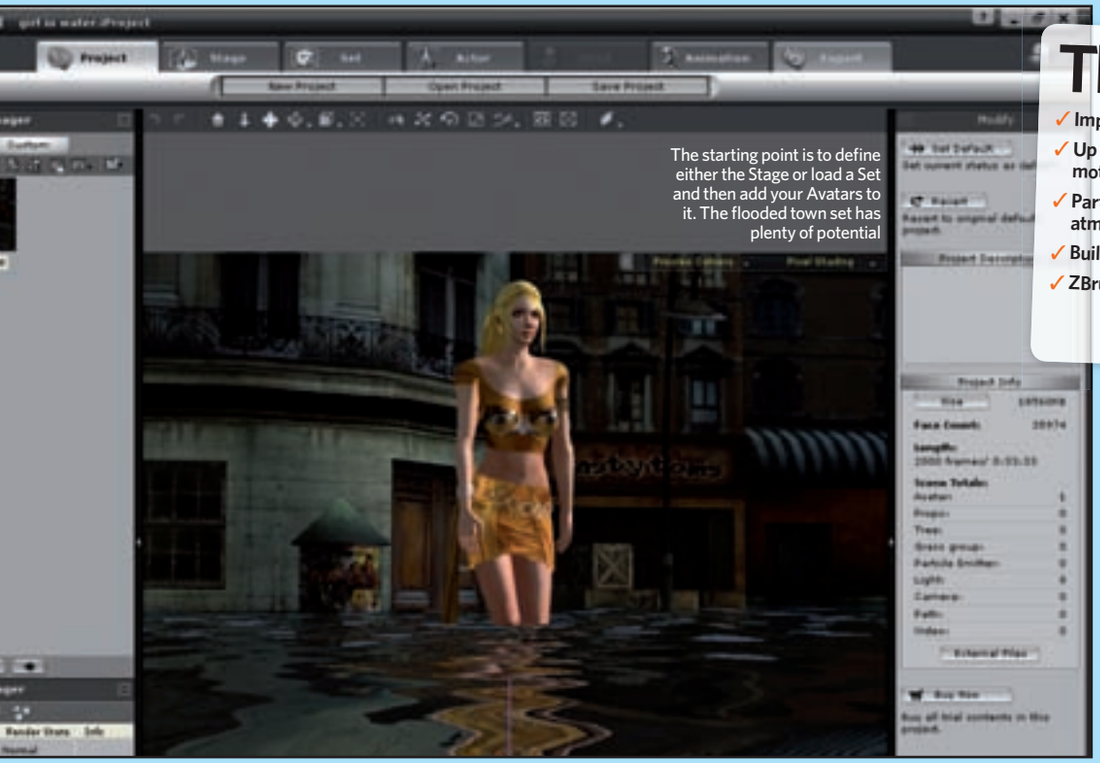


The starting point is to define either the Stage or load a Set and then add your Avatars to it. The flooded town set has plenty of potential

The good & the bad

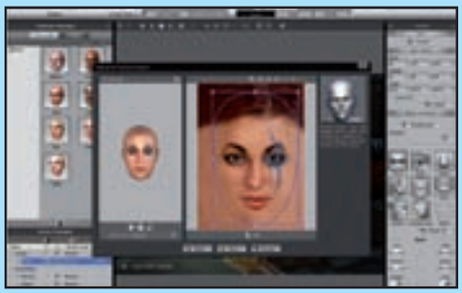
- ✓ Import and map faces
- ✓ Up to 16 cameras on motion paths
- ✓ Particle, water and atmospherics
- ✓ Built-in animations
- ✓ ZBrush interoperability
- ✗ Character quality not great
- ✗ Lighting is very basic
- ✗ Timeline not as clear as it could be
- ✗ Camera view controls are scratchy
- ✗ Doesn't support Studio/ Poser figures

Essential info

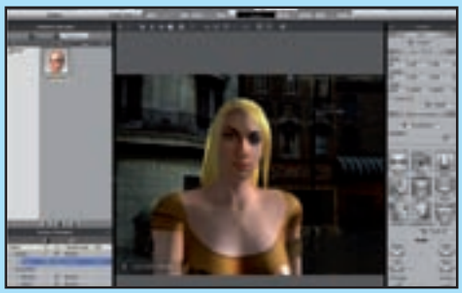
www.reallusion.com
£139.99

OPERATING SYSTEMS
- Windows XP (SP2), Vista, 7, 32-bit and 64-bit

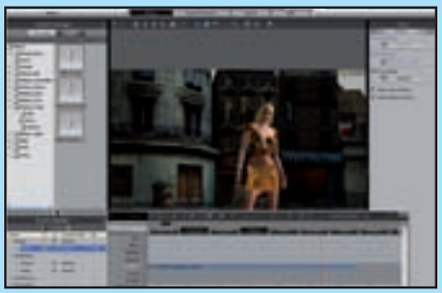
OPTIMAL SYSTEM REQUIREMENTS (PC)
- Dual-core CPU
- 2GB RAM
- 2GB HD
- Video card with 512MB video memory and Pixel Shader 3



Mug shot
Don't like the face of your Avatar? Either load one of the alternative faces or import your own photo



Face time
The photo of the face may not quite fit. Fortunately, the facial characteristics can be edited to make it look better



Action
On the timeline you can see the movement, but remember to physically move the Avatar as well

When it comes to animation, it's an entire bag of tricks because figures, scenes, cameras or video planes can be edited and animated. And this is where iClone4 shows real variety in what it can do. On one level, video can be assigned to multiple planes. These can then be manipulated, deformed and animated within the 3D environment. Then there's the character animation aspect as well, where each one comes with a set of movements and actions. There's a basic time scrubber on the bottom of the screen, but the detailed timeline can be brought up to actually see what's going on. This shows the animation action sequence, and if a figure is moved at a certain point down the timeline then on playback it will move from its current position to that position. Note that figures are treated as any object, though; just changing the position won't make somebody walk there, they will simply slide along unless you also assign a walking pattern to the same section of the timeline that the movement takes place. In fact, it's better to apply the action first and then set the move positions because you can see when you need to do them.

Although iClone can export single-frame images, it shouldn't really be considered as an alternative to DAZ Studio or Poser, as it lacks the more sophisticated posing, lighting and rendering options of those other packages. It's as an animation package that iClone rules supreme, whether that's animating the figures, working with video, puppeteering or the various animated water, particle and atmospheric systems. These are what make iClone4 Pro a very good choice for those looking to make Machinima, animation or video mashups.

Our verdict

Features	9/10
Ease of use	7/10
Quality of results	7/10
Value for money	8/10

> "Quite a staggering feature list, designed for creative video rather than stills"

Final Score 8/10

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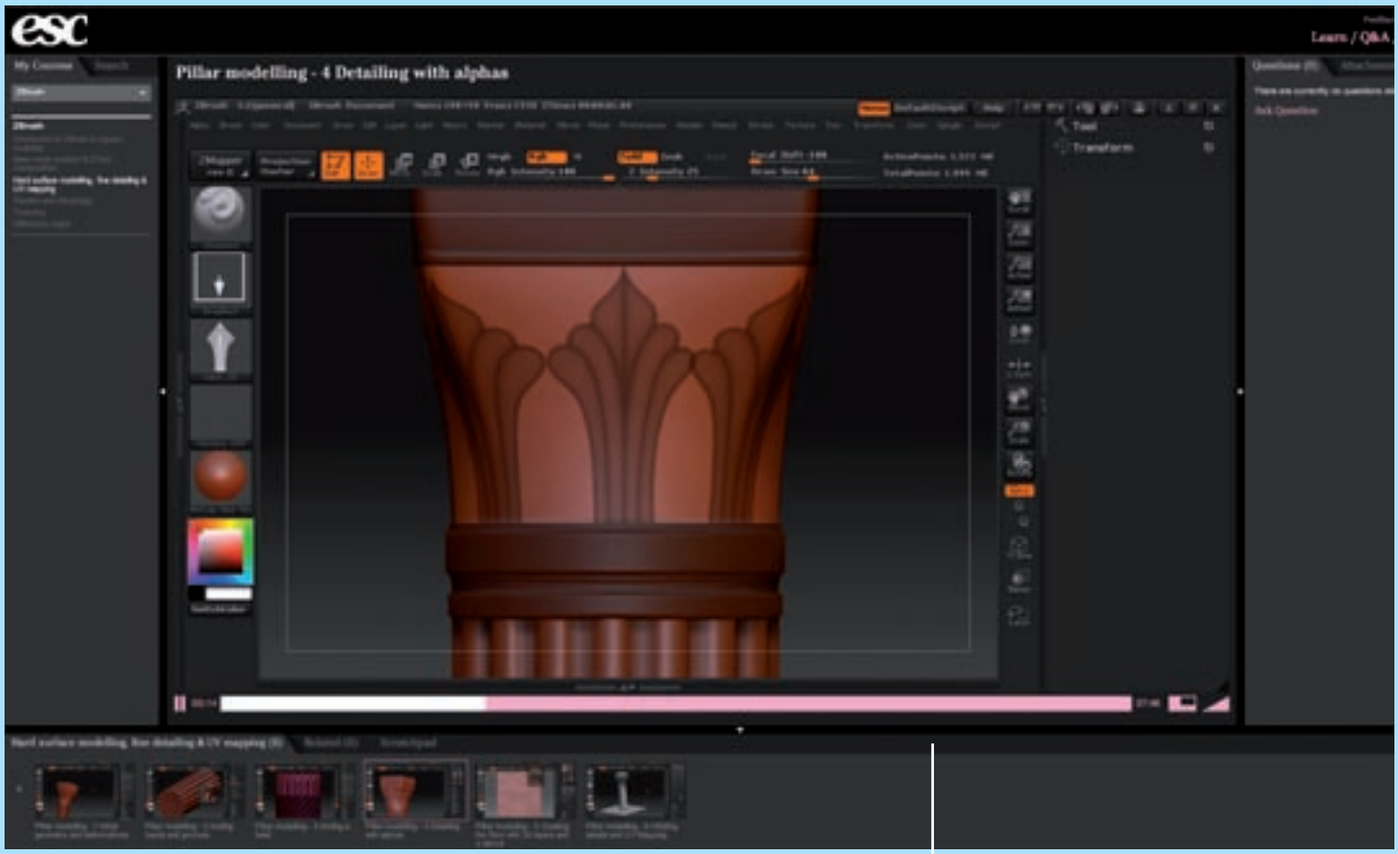
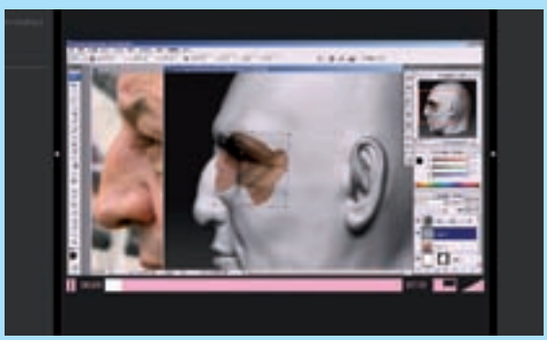


Clear and configurable layout is easy to navigate and customise

Learn ZBrush online £217

Rob Redman takes a look at the ZBrush online training course from Escape Studios

Escape Studios is a well-established source of high-end training and offers a range of courses, from intensive classroom courses to evening classes for those who can't get away from their office. It also now offers a range of online courses, which means that being able to attend its facilities isn't a factor should you wish to learn from its industry professionals. One such course is ZBrush Foundation, designed to prepare students for the industry and consisting of theory and video tutorials. The course fee gives you direct interaction with the tutor and 12 months' access to the training, which means you can learn at a time and place to suit you. The structure is flexible, letting you view lessons in the order you prefer.



Using ZappLink to project textures in Photoshop is fully covered over a number of videos

While watching a lesson you have three tabs under the viewer window. The first tab is for the previous/next video. The second tab is for Related videos, as the instructor occasionally uses processes that you may not yet be familiar with. You can follow the click-by-click instructions but he will also mention if there is a detailed tutorial covering the theory and process. The third tab is called Scratchpad, which enables you to build a set of videos in your own running order. This conveniently allows you to create a planned learning session, concentrating on what you want.

To the right of the viewer window is a pair of tabs, which are used for resources. One will give you access to any attachments, in this case mainly ZTools, which you may need to follow along with the instructor. The other, more importantly, is the Questions tab. This is one of the best features of the course and allows you to communicate with the instructors and community. Previously asked questions will also show up here and your problem may already have been addressed. This is a boon and can save a lot of head scratching if you didn't understand a particular function or have a problem.

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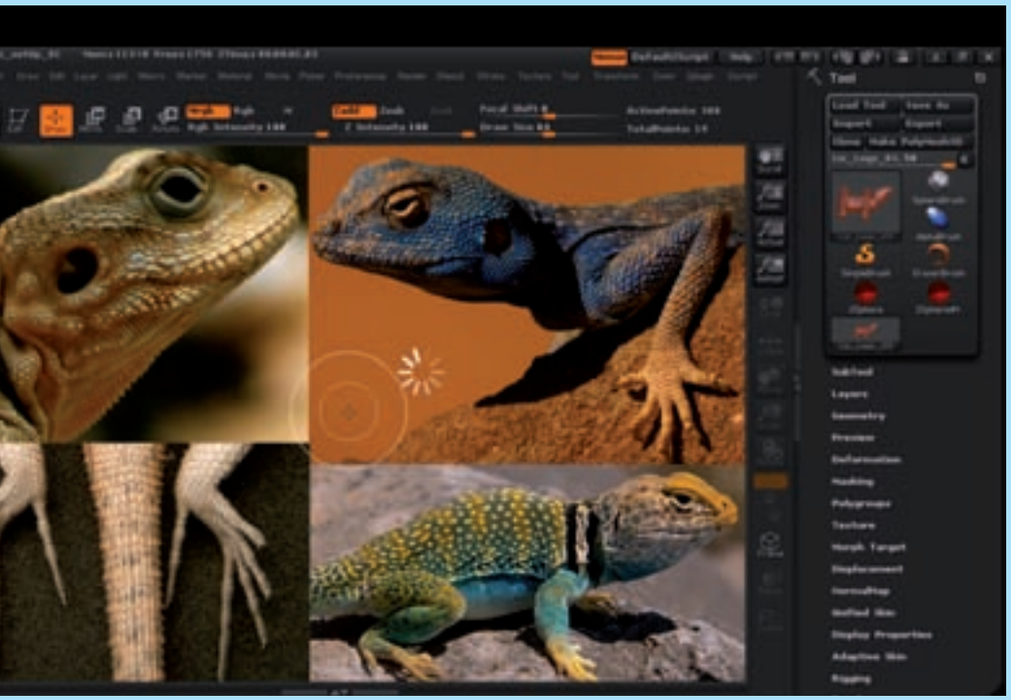


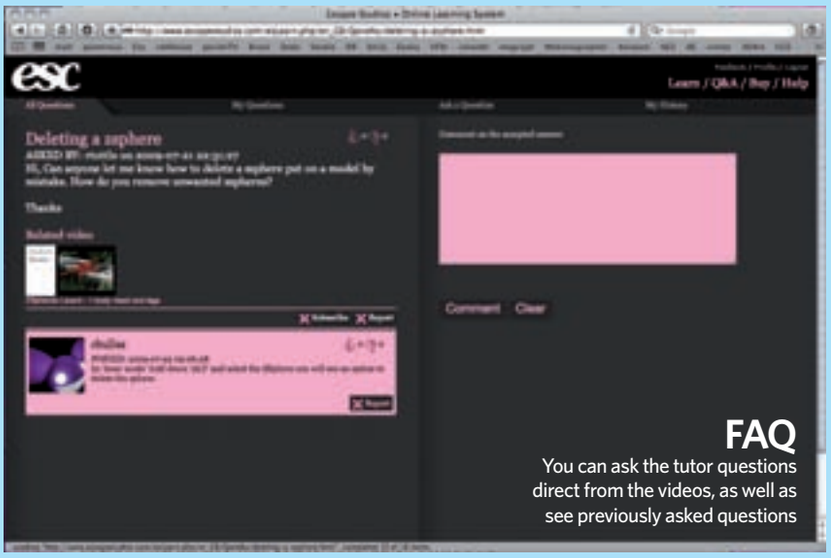
Videos can be run full screen, allowing all the menus to be clearly seen and read

Overall, the content is of a very high quality, covering a little history and theory of CG, hard-surface modelling, base mesh creation and organic sculpting. Workflow and time-saving tips are provided in each video, and even if you've never used ZBrush before then you will soon feel right at home. The lessons are clear, well paced and they are very easy to follow.

The instructor uses Maya to showcase moving your models and maps to and from ZBrush, and explains each action so that you know how and why he does it. It is usually simple to adapt this to your own software.

The only real downside is that you need an internet connection while following this course, as there is no option to download the videos or to buy a disc, which limits when and where you can watch the videos. If you don't have a wireless networking hotspot, you may have to sit at your desk. This isn't as bad as it sounds, as you will normally want to have ZBrush open at the same time but it's worth considering. You do have a year's access for your fee, but at over £200 it shouldn't be too much to expect to be able to keep the tutorial videos.

Overall, the course is easy to follow, has top-notch content as well as the ability to build your own lesson structure, which makes this one of the better ZBrush learning resources available.



FAQ
You can ask the tutor questions direct from the videos, as well as see previously asked questions

The good & the bad

- ✓ Easy to follow
- ✓ Self-paced learning
- ✓ Excellent content
- ✓ Interactivity with the instructor
- ✗ No option to download videos

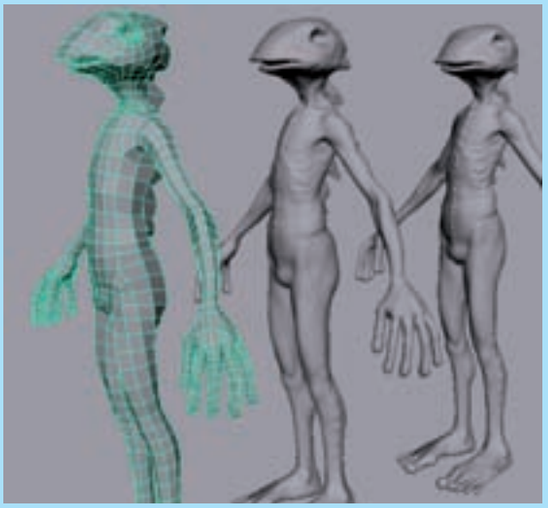
Essential info

www.escapestudios.com
£216.52

SUPPORTED BROWSERS
- Safari, Firefox or Internet explorer

OPTIMAL SYSTEM REQUIREMENTS
- Any PC or Mac that can run ZBrush and a web browser together

The course uses Maya to show the workflow, but you should be able to follow with your application of choice



Our verdict

Features	8/10
Ease of use	9/10
Quality of results	9/10
Value for money	7/10

"A great kick-start into ZBrush, only let down by the lack of the ability to download"

Final Score 8/10

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Muvizu DX Free

A fun, free and no-frills introduction to animation that's ideally suited to beginners of all ages

The creation and implementation of the characters is incredibly simple and straightforward

A single click is all that's needed to move the objects around the room

Editing is basic, but with some perseverance there's plenty of fun to be had with Muvizu

As a free program, Muvizu (www.muvizu.com) offers more than enough for the average beginner 3D animator to make a very simple video. What's more, even an absolute novice can get to grips and start creating something in a few short hours.

As would be expected for something that is free, Muvizu isn't massively in-depth. Instead, it is more of a fun introduction to animation. The amount of prior knowledge required to get started is minimal, as the program can drop in a ready-made scene, object and character after a single mouse click. There's rarely any need to stray away from the left and right buttons, as a hold-and-drag moves the camera around from left to right and up and down. Because of this a teenager – or even a child of around ten years old – could create some kind of end product, stacking up and executing basic animations and making a movie in minutes.

The interface, much like the aim of the program, is refreshingly basic. With only seven menus to tackle, the flow is extremely easy to gather for anyone having dabbled in most forms of computer-based editing. The Create function opens up the preset templates, with characters and background immediately selectable. The feel of the program is quite obvious from this library, as the surroundings are suitably cartoonish not to be taken seriously but well made enough to be worth using. Placement of static objects can be performed in seconds, even from scratch, and the characters within the scene can then be added in a fashion that's equally as rapid.

The animation portion seems to be based slightly more around trial and error, as the amount of actions that can be prepared is limited, but those available are fun enough to ensure a few hours of enjoyment at the very least. Both background and dialogue audio can then be added in, with some relatively impressive syncing for such a basic piece of software, and sound effects can also be created to add to the end product.

It's worth mentioning that expecting too much from this very basic but incredibly fun piece of software would be to do it a disservice. The editing is very rudimentary, and the amount of action that can be performed before recording is limited to the extent that often only one area will be moving at a time, but for an absolute beginner wanting to do something basic within animation then Muvizu is an absolute blast. The fact that both kids and adults have already started uploading content goes to show the potential of such a program in the hands of a creative personality.

> "Placement of static objects can be performed in seconds"

Our verdict

Features of site	6/10
Ease of use	9/10
Quality of models	7/10
Value for money	10/10

> "A simple piece of software that may be limited, but is great fun for beginners and kids"

Final Score 8/10

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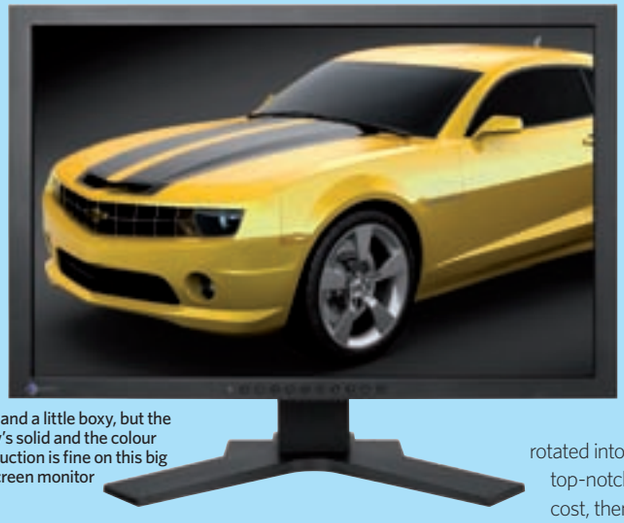
EIZO ColorEdge CG243W £1,039

There's little doubt that this is a screen worth monitoring

It's a simple fact of life that the bigger your monitor is, the higher the resolution it supports and the more detail you can see easily on screen. If you're producing CGI professionally then a big monitor is a wise investment, so here's the EIZO widescreen 24-inch beauty. Well, we use the word beauty advisably, as boxy would be a better description. The headline statistics are that it supports up to 1,920 x 1,200 resolution, with 270 cd/m2 brightness, a 850:1 contrast ratio and has a 6ms response time. Getting inside the numbers, this means that it's nice and bright but that the contrast between dark blacks and white highlights isn't exactly spectacular. Additionally, there shouldn't be any ghosting from moving things around on screen, as the refresh rate is perfectly adequate.



It's big and a little boxy, but the display's solid and the colour reproduction is fine on this big widescreen monitor

There's bundled calibration software, and when paying over a grand for a monitor you will want this to be set up properly. In terms of colour reproduction, the CG243W uses a 3D, 12-bit LUT for better colour combinations and grey tone reproduction. The only fly in the ointment is that the Adobe RGB coverage is 97%, although sRGB is fully covered. The display itself is finely detailed and features automatic orientation switching when the screen is rotated into an upright position. If you need a top-notch monitor and don't mind the cost, then the EIZO is worth considering.

www.eizo.com

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	8/10
Value for money	6/10

"Not the prettiest monitor, but a super display and great colour reproduction make it worthwhile"

Final Score 8/10

Thomas the Tank Engine: Hero of the Rails £12.99

Nice effects to keep the kids amused

Anyone with young kids will be familiar with the adventures of *Thomas the Tank Engine*, but opinion is split on whether the move from figures to CGI is a good one. It started with the previous DVD release where the faces were CGI on real models, but here it's the first *Thomas* movie (60 minutes running time) that's fully CGI. In theory this is a good idea, as kids love CGI characters and the technology allows for greater creativity in scene construction. Mind you, *Wallace & Gromit* has shown you don't need CGI to make great animation.

The first key issue is that of facial expression and lip-syncing on the engines themselves, and this is spot-on and faithful to the originals. What's immediately apparent is that many of the scenes are much more cinematic – there's greater background scenery, better camera work and motion blur, while the lighting is subtle but better. The smoke effects and volumetric lighting all add to the scenes without dominating. There's much more background activity, with seagulls wheeling in the air, men working and cranes swinging, although the clouds in the sky are often completely static.

There's an interesting diversion into 2D art at one point, some nice vintage-effect footage and more interaction with scenery than the old style. Certainly, the makers have to be congratulated on enhancing the style of *Thomas* without losing the nature or character of the series, making this an ideal DVD for young fans or parents looking for a modern twist on a classic series.

The facial animation is done well, while various special effects such as particle effects, volumetric lighting and transparency are present

www.thomasandfriends.com

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	8/10
Value for money	8/10

"A classic series gets a CGI makeover while remaining true to the original"

Final Score 8/10

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COOL TRICKS
Find out how to make some unexpected characters walk on two legs

How to Cheat in 3ds Max 2010 £19.99

Pro tip: not by rendering Jessica Rabbit

info

AUTHOR
● Michele Bousquet

PRICE
● £19.99

PUBLISHER
● Focal Press

ISBN NUMBER
● 978-0-240-81161-1

Everybody loves cheats. Blame videogames if you like, with their hidden invincibility boosts. There's something about the idea of cheating that is infinitely more appealing than the idea of learning something in ten simple steps, especially if it's flagged up with the words 'made easy'. One sounds like learning Esperanto for fun, the other sounds like the kind of thing the cool kids do.

The thing is, we wily writers of technical tips have cottoned on to you. We know you'd rather buy the equivalent of a filled-out answer sheet than a *Letts Guide*. We'll call things names like *How to Cheat in 3ds Max*, but you know what we'll put inside? You know what we'll do? We'll still write you tutorials and make you do it yourself. This is what crafty author Michele Bousquet (who has been winning character animation awards since 1998, fact fans) has done. He might title chapters with beguilingly down-with-the-kids headers like Bling, Dude Where's My Reflection? and – this reviewer's personal favourite – Secrets of the Spline, but underneath that matey, youth worker exterior, this helpful book is still going to make you learn something.

Actually, it's going to make you learn a fair old bit, and this is where the cheat guide element comes into it. Users who are learning an interface don't want to cheat as such, they just want to render something slightly more edifying than a grey box. This book understands that, and instead presents you with simple ways to look at tasks you'd want to do. It features logo design, basic character and facial modelling and special effects. It also looks at how you go about doing cool little things, like creating a rendered clock that keeps time – stuff the average viewer of an animation might not notice but that displays fantastic attention to detail in a portfolio piece, and can be incredibly important in a videogame. There is serious stuff hidden in here.

The text is a bit too teenage 'anti-drugs pamphlet' in its style to keep you coming back for more, but if you are a 3ds Max beginner who is either over 50 or has a deeply ironic sense of humour, then you are not going to find the editorial angle too cloying. Anyway, it's better than having to learn Esperanto.

REFLECTIONS
Learn how to create a multitude of different reflections under various lighting conditions

QUICK TRICKS
Model a building in just 15 minutes with this how-to guide

PHYSICS EXPERIMENTS
Learn to correctly express the laws of physics for added realism

CREATE LOGOS
Create animated logos for your website or portfolio

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OpenGL Shading Language $59.99

Programmers try their best to make life interesting

This is the Orange Book. You've seen that bit in *Hackers* where the hippy-looking kid has all the books, right? They're called the Rainbow Books. Owning them was considered the epitome of hardcore geek chic at one point, and programmers have never really got over them.

This isn't the real Orange Book – that's called the *Department of Defense Trusted Computer System Evaluation Criteria*. This is *OpenGL Shading Language*, the sequel to the Red Book (the *OpenGL Programming Guide*, not the *Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria*). But in case you didn't know that, it takes up some of its mammoth size in recapping the basics. Look, this is a big fat technical manual and you're going to learn OpenGL Shading Language from it, okay? You're going to learn it really well. Like, 1337. You'll be the 3D equivalent of Matthew Broderick in *WarGames*. Programmers are geeks.

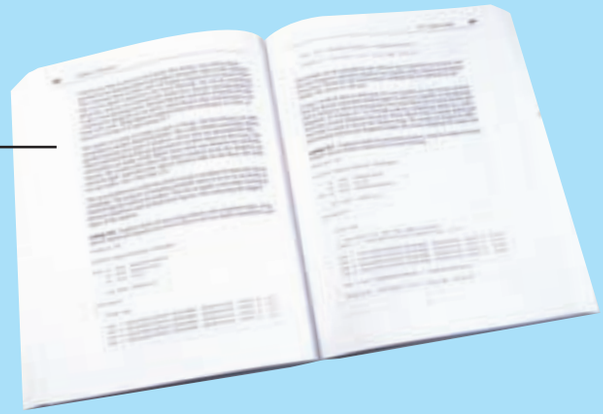
info

AUTHORS
- Randi J Rost, Bill Licea-Kane

PRICE
- $59.99

PUBLISHER
- Addison-Wesley

ISBN NUMBER
- 978-321-63763-5



CODE
There's no escaping it – in place of lavish illustrations you'll find strings of code. This one is for shadow mapping

REFLECTIONS
Gloss mapping can be coded to give surfaces fantastic reflective effects – find out how

CRIB SHEET
A handy cheat sheet for quick access to texture commands in OpenGL

New Retro £24.95

Look to the past for inspiration

Forget the other one, this is the real Orange Book. This is about retro, and consequently it oozes Seventies brown and orange colours. We're talking serious fangirling over Sainsbury's paprika packets here.

This book is a collection of some of the best in historical design; styles that are now coming back into vogue in a big way. All manner of things are included, from posters and record sleeves to household objects. An artbook is as likely as a Hoover bag to make the grade for inclusion.

If you don't think this book will prove useful to you then consider interior scenes, especially if you want to signify that they're set in a certain time or place. Getting an accurate look at some memorable design icons of the past – even if they are toothpaste tubes – will add depth, realism and resonance to an interior render.

info

AUTHORS
- Brenda Dermody, Teresa Breathnach

PRICE
- £24.95

PUBLISHER
- Thames and Hudson

ISBN NUMBER
- 978-0-500-51470-2

MODERN USES
These chic soap packets demonstrate how retro designs can be updated for contemporary products

CLASSIC RETRO
These toys and posters could be used to add period charm and realism to an interior scene

TYPE
Typography can be a key signifier of a particular era, so consider it when thinking about posters in street scenes

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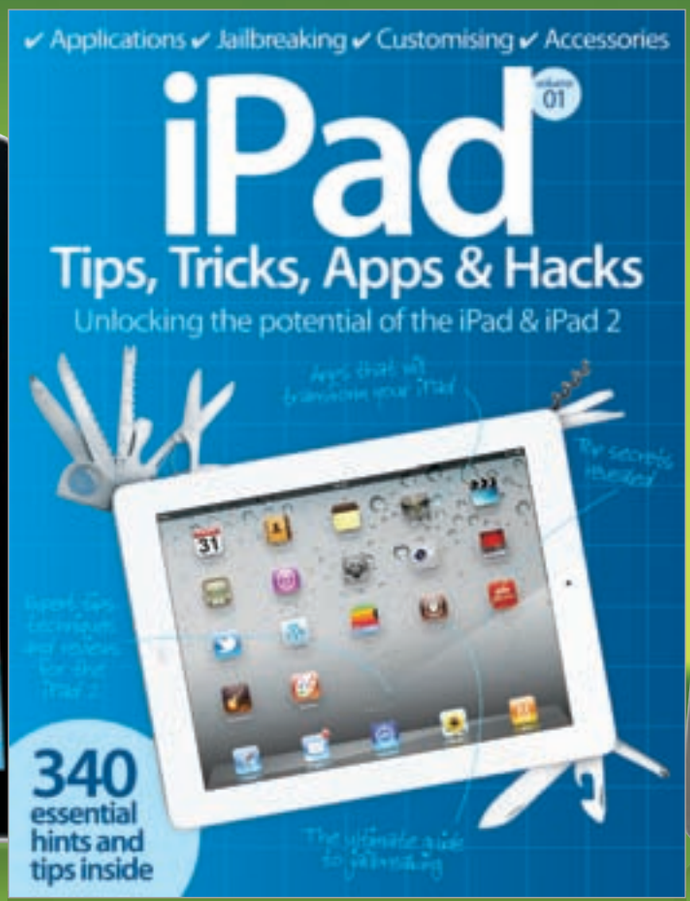
We don't keep secrets

iPhone
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

iPad



Printed full colour large format book

Kindle

Tips & Tricks™

Learn the truth about iPhone, iPad, Android, Photoshop and more with the Tips & Tricks series' expert advice and tutorials

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workspace 3D

Inside guide to industry news, studios, expert opinion and education

104 Insider interview

Brent Zorich

In this issue, we talk to a man who regularly spends time at Skywalker Ranch and is responsible for film/game convergence studies at Lucasfilm

098 News

Industry news

Wacom solutions for 3D artists, a new professional solution for outputting RED ONE 4k digital camera data, Aardman Studios has signed up to use RV and Mixamo now supports 3ds Max bipeds. All the industry news you need to know

100 Studio Access

Saboteur

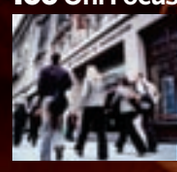
Behind the lines of wartime France, as the streets of Paris become the backdrop for a story of intrigue, murder and sabotage. Discover how the game got the look and feel of the Forties and how a large-scale scenery map was created

Inside

> "I know how a football player flexes, I know how they run and sprint and I know how they get prepared for collision"
>
> **Brent Zorich,** film/game convergence for Lucasfilm, on understanding the human physique for rigging game characters.
>
> Page 104

Barbarian
Paul Francis
Personal portfolio site
www.3dartistonline.com/user/stormdraingfx

106 Uni Focus



University of Westminster

What does the BSc (Hons) Computer Games Development degree have to offer the prospective student interested in working in the games industry? Read on to find out

To advertise in **workspace** please contact
Cassie Gilbert on **01202 586421** or **cassandra.gilbert@imagine-publishing.co.uk**

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Wacom solutions for 3D artists

Big Bad Boo Studios implements all-digital workflow

A

B

C

D

A Big Bad Boo's Aly Jetha and Shabnam Rezaei

B Big Bad Boo layout supervisor Chris Muzyka with Wacom Cintiq 21UX

C Big Bad Boo storyboard artist Gordon Crum using Wacom interactive pen display

D Wacom's new microsite is unveiled

It's been a big month for Wacom, the best-known manufacturer of graphics tablets in the world. Only recently, it has relaunched its consumer-level Bamboo range, which now incorporates touch features for using multiple gestures as well as the stylus for input, giving 3D artists much more choice and flexibility in the way that they work.

The most popular of the range's products for 3D animation is the Cintiq 21UX, and Wacom has announced that it is being used by Big Bad Boo Studios to accelerate storyboard creation for animated children's programming by 60 per cent.

Big Bad Boo Studios works with an all-digital workflow that consists of 14 Wacom Cintiq 21UX interactive pen displays (www.wacom.com/cintiq), improving efficiency in its storyboarding and layout processes, eliminating previous nondigital methods using paperboards and scanners. Its latest production, an animated comedy series of 26 11-minute episodes of *One Thousand and One Nights* for six to nine-year-olds, uses an entirely digital workflow of Cintiqs, proving that 3D artists can work with this method effectively.

"The Cintiq 21UX displays are crucial to our efforts from asset creation and management to final shipping," says Shabnam Rezaei from the studio. "If you compare the storyboard process of *Mixed Nutz* (its first animated production) to *One Thousand and One Nights*, you see that the Cintiq helped us accelerate production time by nearly 60 per cent."

It has announced a new brand for its OEM solutions under the name of Wacom Feel IT Technologies, built to be a "step in the company's ambition to provide natural and intuitive user interface experiences." The idea of the Feel brand is that it focuses on how technology makes people feel. New solutions include the integration of multitouch functionality, as seen in the new Bamboo line. This Feel brand is supported by a new microsite at www.feelwacom.com.

> "Big Bad Boo Studios works with 14 Cintiq 21UXs"

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workspace3D
To advertise in workspace3D please contact
Cassie Gilbert on 01202 586421 or
cassandra.gilbert@imagine-publishing.co.uk

Rocket Fuel bundle announced

Professional solution for outputting RED ONE 4K digital camera material

E

ASSIMILATE has announced a new ROCKET FUEL bundle, which includes everything needed to ingest, conform, deliver and output RED ONE 4K digital camera material in real-time.

Aimed at filmmakers on a budget and postproduction studios, the cost-conscious bundle weighs in at $10,999. This includes an NVIDIA Quadro FX3800 SDI board, a RED Rocket card and SCRATCH CINE 4K post workflow.

When used with a PC workstation, the bundle enables users to tape dailies to a variety of formats, screen in all formats, accelerate data output to QuickTime, quality check for on-set and postproduction dailies, pan or scan and output in real-time, set up for SCRATCH finish, as well as set up and transcode for D1. This system offers low-cost methods for timeline setups and migrating to systems.

"The big news here is that with ROCKET FUEL, we've created a highly affordable option for boosting the performance of 4K that didn't exist until today. Aggressively priced – at half the cost of SCRATCH CINE alone – it's the first product bundle for RED Rocket that meets the needs of the PC user," says Jeff Edson, CEO at ASSIMILATE. "When considering the overall cost of a 4K workflow, this is a huge win for all filmmakers and postproduction houses who can now afford the essential tools to push the performance of their 4K tools to the outer limits and achieve high-quality output comparable to 35mm."

The ROCKET FUEL bundle is available now, so visit www.assimilateinc.com for more details.

> "Filmmakers and postproduction houses can now afford the essential tools to push the performance of their 4K tools"

E Image courtesy of Merge NYC (**www.mergegroup.com**); SCRATCH used for colour grading of Jockey commercial that was shot using the RED ONE 4K digital camera

E

Aardman Studios uses RV

The Tweak Software program is integrated into the animation studio's workflow

Californian-based company Tweak Software is the name behind RV, a real-time film resolution, HDR image and sequence viewer. Formed in 2007, it was built to address the "real-world production needs of VFX and animation professionals."

Aardman Studios, the UK-based Academy Award-winning animation studio, is the latest client to use the RV software, integrating it into its new Linux-based CG pipeline, having used it since its pre-beta release.

"Aardman's work over the decades has earned the studio a unique place in the history of animation. Having Aardman adopt RV is a great acknowledgement of the software as a tool for artists," says Seth Rosenthal, Tweak co-founder.

Find out more or request a free trial at www.tweaksoftware.com.

G

Mixamo supports 3ds Max bipeds

First online platform to extend support for the Autodesk solution

Mixamo has announced support for Autodesk 3ds Max's biped system control rigs, which should make a 3D artist's workflow quicker and more effective.

The online platform offers a collection of customisable mocap-quality character motions, mapping them directly onto bipeds, doing away with the traditional keyframing and motion-capture techniques used to animate biped characters. Mixamo predicts that this will improve the speed of 3D character animation creation by up to five times against current industry averages.

The new character motions use the Autodesk 3ds Max FBX plug-in, which can be installed in 3ds Max 2008 and later. For more, see www.mixamo.com.

F Aardman Studios uses RV in its CG workflow

G Mixamo offers support for the 3ds Max biped system

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Studio Access

The Saboteur

Jon Denton travels to Paris to see how its wartime equivalent was built in *The Saboteur*

Pandemic is an EA-owned studio famous for its role in the growth of open-world gaming. It concentrates on crazy action and destruction along with vast, expansive environments

www.pandemicstudios.com

Description Set in occupied Paris and starring former racing driver Sean Devine, *The Saboteur* is an open-world adventure that sees you join the French Resistance and rise up against the Nazi oppressors. Players are free to explore any part of the city, even the rooftops

Country US

Publisher Electronic Arts

Software used Softimage

Key people

Chris Hunt
Lead artist

Tom French
Lead designer

It's not every day you get to travel to the world's most cultured city to talk about videogames and art, but that's exactly what happened on our recent sojourn with Electronic Arts in the capital of France to see its forthcoming open-world romp *The Saboteur*. It couldn't have been a more suitable setting either, what with the videogame being set in occupied Paris, featuring a fully rendered city that players can explore from any angle. Not surprisingly, then, lead artist on the project Chris Hunt has spent a lot of time with his head in the Parisian clouds.

"We had to create our own engine from scratch just because of the demands of what we wanted to create," he explained over a drink in a backstreet Parisian cabaret club. "It's a world that not only has a heavy amount of architecture and props, but we also knew that we had terrain to build, the things that you'd associate with the countryside. So we had to develop a series of different tools that would integrate real streets, buildings and things like that in a seamless fashion with terrain."

A tough challenge if you're using middleware, but doubly so with a proprietary engine. *The Saboteur* has been built from the ground up at Pandemic Studios, abstaining from the unstable *Mercenaries* engine in favour of something a little more stylish. So how exactly do you go about building a Paris under Nazi occupation?

"Actually, we use Softimage," Hunt answered, matter of fact. "We've been using Softimage for quite a while now; we're beta testers for Softimage, so we use almost all of its tools to do all of our 3D work. But we use secondary software, ZBrush and Photoshop for After Effects things – we use any wholesome tools we can get hold of. We actually use a little program called Leveller to take real-time digital elevation

> "Pandemic has chosen to illuminate Paris's districts in a very literal sense"

A

data, and then pull that in so we can create the terrain that we want."

It's come together well, though. An open world is always the trickiest to build for a development studio, simply because it has to be rendered from so many angles. And with a game like *The Saboteur,* which allows players to scale vast buildings as well as stare up at them from road level, this poses another serious set of challenges to the art team.

Take the centrepiece of the world as an example. *The Saboteur*'s version of the Eiffel Tower certainly looks the part, but this isn't a simple geometric model by any stretch, as Hunt explains: "I would have to say that the hardest monument was probably the Eiffel Tower, not only because it's very complex but you can also see the complexity within the tower when you're moving through the game. On top of that, we have the requirement that you have to be

portfolio highlights

These are just some of the many titles that Pandemic has worked on in recent years

2009 *Zombieville USA*, iPhone, iPod Touch
2008 *Mercenaries 2: World In Flames*, 360
2005 *Mercenaries*, PS2
2005 *Full Spectrum Warrior*, PS2
2005 *Destroy All Humans!*, PS2
2004 *Star Wars: Battlefront*, PS2

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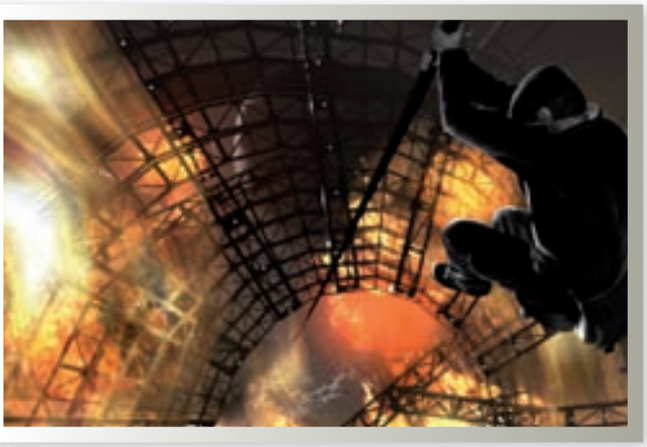

B

C

able to climb it, so we had to make the Eiffel Tower not only digitally appealing but also practical, so you can climb to the top."

It's surely an art team's worst nightmare, having a producer turn around and ask for interactivity in an asset that was previously just for show. "Well, first there's a lot of 'oh my God, why do we have to do this?', then it's like 'okay, how do we actually do that?' until we come back and say 'ah, we have a solution for it'. We usually go through those three phases. We had a pretty robust system for building out the city within modules, as we weren't building set assets because we knew we would have to interchange different things all the time and also reuse as many assets as we could. So we could apply that philosophy to even the standalone pieces [Paris's monuments] – we're pretty much only going to build them once but the same theory is applied to all of those, which made building the Eiffel Tower – or any of the other monuments – much easier to manage or change if we needed to. Especially as, along with the Eiffel Tower, we wanted the player to be able to climb any of the monuments, so that also helped with that."

The life of an art team isn't always a simple one, as Hunt has described. It's this commitment to flexibility that usually leads to the strongest games and most robust worlds, though, and it's a credit to the team that it is possible to scale any part of Paris without the engine creaking or faltering in any way.

This is doubly impressive when you begin to understand just how Pandemic has chosen to decorate its world. As the premise of the game sees protagonist Sean Devine helping the French Resistance in its plight to usurp the Nazis, Pandemic has chosen to illuminate the districts of Paris in a very literal sense. Occupied areas appear sapped of

A Pandemic's impressive open world not only has to function at street level, but also from above. Every major structure can be scaled (and, of course, leapt from), giving the art team some serious challenges

B Flames and explosions proved a successful investment of time, as they illuminate the black-and-white areas and accentuate the coloured ones

C Sean Devine, based on William Grover-Williams, treads the line between interesting protagonist and gaming cliché dangerously

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colour, a *Sin City* monochrome punctuated by key reds and whites, while liberated Paris glows with a richness last seen in Jean-Pierre Jeunet's beautiful *Amelie*. It's a system Pandemic has nicknamed 'Will To Fight', as it determines the willingness of the locals to join in the uprising.

Unlike similar effects in rival games, though, *The Saboteur*'s colour manipulation takes place in real-time and in three dimensions, which Hunt and his team are extremely proud of. "One of the grand experiments that we went for originally was having a full-screen filter – taking the screen and setting the render buffer to take away or add colour, but it didn't work in three-dimensional space. We wanted it to be an interactive piece of the world and not just something you view, because it doesn't make sense if you're moving through the world and it turns to colour as far as the eye can see, then it turns to black and white as far as the eye can see. [We thought] well, what is the Will To Fight based on? The mechanics of you moving through the world and inspiring certain people in this area to fight, or is it something you just see? It looks a little too ethereal if you just go with a screen-based solution, so we set that aside and decided that it had to be in the world. This direction posed a set of different issues we had to conquer."

Of course, with a world so expansive and the inherent difficulty of rendering a fully functioning city in two colour styles simultaneously, there's a serious hit on the processor. How did Hunt and his team work around the limitations of the current videogames consoles?

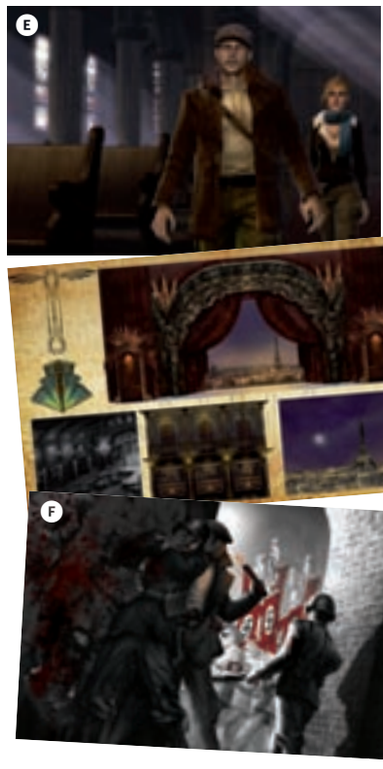
"We said from the beginning that we wanted to see the expanse of the city. We have a series of LODs, which we call the far scene, the far far scene and the far far far scene," Hunt laughed. "So we have several levels of depth with the terrain, and with the buildings you can see much further in the distance – if you're looking 20 miles away, there is actual geometry there that moves in the light if something passes over it and, of course, reacts to the Will To Fight. That gets very expensive, though, so we included an occlusion system that allows us to cover objects that we weren't seeing, and we did that – I mentioned the module system before – per module. It saves a lot of processing power and it looks a lot more realistic. If you don't see it, [the engine] does not draw it until you get there and you're actually able to see it. It occludes block by block by block, which is why it's very important to say 'okay, I have a monument and I can look down, but that's going to occlude the street level."

> "Unlike similar effects in rival games, though, colour manipulation takes place in real-time and in three dimensions"

Compared to the process of building a CG movie or a static 3D image, it can be surprising to hear how many clever tricks have to be utilised just to get a game world up and running. Of course, this creates risk. For every moment that the world looks and moves exactly as it should, there's the pressing concern that it might all fall apart at any moment – something we're sure happened more than its fair share of times during development.

Credit, then, that *The Saboteur* is one of the most stable open-world games outside of *Grand Theft Auto*, rarely relying on fogging or texture pop-in to create

D



E

F

D This painted piece of concept art neatly shows what the art team were going for with the Will To Fight system. The Nazi-occupied areas are sapped of colour and passion, while the free lands are golden and rich with vibrancy

E The final character models may be true to their conceptual beginnings, but aren't the most detailed you'll find. Instead, the processing grunt has gone on the world itself – the game's true star

F It may be influenced by *Indiana Jones*, but *The Saboteur* is considerably more violent. It wouldn't be a videogame without some claret on the walls, though

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G

its Parisian illusion. Hunt gave the impression that it's been a real labour of love for him and his team.

"I would say that the one thing I'm most proud of, first and foremost, is the team. Everyone's innovative, everyone's passionate, everyone has contributed something to the look and feel of the game, and they've all been great. You know, I was the first artist on the team and developed the Will To Fight and the look and things like that, but other people have contributed so much – I'm not the 'be all and end all' of the style. The contributions from everybody have just been wonderful.

"The other thing is being a new IP, coming out with such an experimental style and also two or three different-looking styles within the same game, I'm really proud that we not only achieved the goals we set out to accomplish, but we've been recognised for it also. At E3, we won best artistic style over *Assassin's Creed 2*, which was phenomenal. It wasn't something we were going for, it wasn't something we were trying to do, it just happened. The world has seen a lot of our labour and is liking it."

Whether or not that will translate into sales is another matter entirely, but Pandemic has laid a solid and dependable groundwork in an interesting setting. We'll see you at the top of the Tower.

H

I

G Sean receives his missions from a strip joint, The Belle, which the artists no doubt enjoyed dreaming up. Imagine a classic French cabaret club and you'll get the picture

H Colour plays a pivotal role in the videogame, often in a *Sin City* style. The city is rendered in two different colour schemes at the same time

I A lot of thought went into *The Saboteur* before production started, this piece of concept art being just one of many

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Industry insider

Brent Zorich

Character technical director, Lucasfilm

Each issue, **3D Artist** finds out how the top people in the 3D industry got their jobs and what you need to know to get a foot in the door

About the insider

Job Character technical director/lead rigger

Education Master's of Fine Art at ACCAD at The Ohio State University

Company website
www.lucasfilm.com

Personal website
www.brentzorich.com

Biography Prior to immersing myself in the animation industry, I had worked for the top two architectural firms in the world. I pride myself on trying to be on a team that does the best work, no matter what project. I push technology as far as I can on whatever team I am affiliated with

There are few people in the 3D industry who can claim to have worked on bestselling EA games titles one year and hung out at Skywalker Ranch with Lucasfilm the next, but Brent Zorich is a man who can. Zorich was part of a steering committee meeting for Lucasfilm on film/game convergence. In addition, he was lead rigger on *The Force Unleashed: Ultimate Sith Edition*. On this title, he was working in the LucasArts division, looking at pipeline and storage optimisation and lead rigging on such characters as Jabba the Hutt and Boba Fett. Zorich was also dealing with convergence on all divisions from Lucasfilm to LucasArts, Lucasfilm Animation, Industrial Light & Magic and Lucasfilm Animation Singapore.

3D Artist: *What did this role of working on convergence mean in practice?*
Brent Zorich: As a part of the senior staff, I wrote proposals to help set the direction for Lucasfilm Ltd as a company. In Singapore, not only was I part of research and development prior to my promotion and relocation to the home office in San Francisco, I also worked on colour correction and compositing for *Star Wars: The Clone Wars*.

A

3DA: *How did you get this job?*
BZ: I applied online and was hired after Lucasfilm Animation Singapore saw the great work I did on EA Sports' football franchise.

3DA: *What kind of course did you do at university, or training did you do?*
BZ: At ACCAD at the Ohio State University, I did extensive research on the following topics: VRML; procedural animation; Pixar's RenderMan; motion capture. I also researched Wayfinding in real-time simulation (the subject analysed and improved upon was the game *Spider-Man The Movie*).

First of all, the Wayfinding tool was created out of VRML and theories worked on with an eminent scholar. I also studied the enhancement of realism in computer animation through the incorporation of biomechanics and fatigue (the subject analysed was *Shrek*). Next, I looked at rigging of prehistoric animals with my project-based thesis *Mystery Dinosaur* work. Finally, I looked at creatures evolving based on the ecosystem around them. Classes were also taken in digital still-life lighting and theatre lighting.

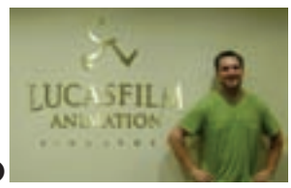
3DA: *For today's generation of students, what is the kind of educational grounding they should be looking to undertake to get a first job as a character animator, or is the entry level a less specific role?*
BZ: This is the way that I do it. I have a television next to my monitor. I watch *Harry Potter and the Prisoner of Azkaban* (the Buckbeak scene). If I am embarrassed to look at what is on my monitor then I'm not done, plain and simple. I am my own toughest critic and I have zero tolerance.

3DA: *In your role as associate technical artist or lead rigger at EA Sports, what kind of work did that entail?*

portfolio highlights

Zorich has worked on a host of videogames over the years. Feast on these...

2008-9 *Star Wars: The Force Unleashed, Ultimate Sith Edition*
2008-9 *Indiana Jones and the Staff of Kings*
2008 *Star Wars: The Clone Wars*
2008 *EA Sports MMA*
2007-8 *NFL Tour*
2007-8 *NFL Head Coach 09*
2007-8 *NCAA Football 09*
2007-8 *Madden NFL 09*
2007 *Tiger Woods PGA Tour 09*
2007 *Madden NFL 08*
2007 *NCAA Football 08*
2007 *College Hoops 2K8*
2007 *NBA 2K8*
2006 *College Hoops 2K7*
2005 *Superman Returns: The Videogame*
2003-5 *The Mystery Dinosaur* for The Discovery Channel



B

A Character rigging on SW Force Unleashed

B Brent at Lucasfilm Animnation

C NCAA college football from EA

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C

D

E

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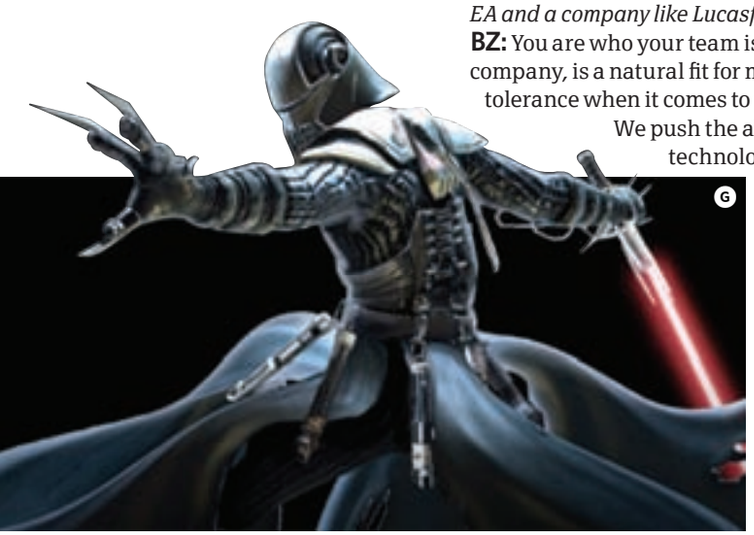
BZ: I needed a complete understanding of physiology of humans built for strength and speed. Because I was an athletic trainer who trained football players, it came to me naturally. I know how a football player flexes, I know how they run and sprint and I know how they get prepared for collision. Often, because I have a football player's body, I would go into the washroom at EA where there was a mirror, take off my shirt and flex both my traps and my arms to see the proper deformation. This is how I got into character and what made it so easy is that the character I was getting into was myself!

3DA: *Is there much of a culture or professional working practice difference between working for someone like EA and a company like Lucasfilm?*
BZ: You are who your team is. Lucasfilm, as a company, is a natural fit for me. We both have zero tolerance when it comes to the quality of our work. We push the absolute limitation of technology in every way, shape and form. Because we are not on yearly titles, we have the ability to push back a launch date to guarantee that we are doing our best to break new ground.


G

3DA: *What software packages and tools have you used for rigging and animation?*
BZ: I use Maya, the proprietary software to Industrial Light & Magic, and After Effects and HyperCam for documentation.

3DA: *Do you think there is a shortage of skilled digital artists doing animation and did you find it difficult getting into the industry?*
BZ: My best advice to any student is try to do an internship in a studio. Do not rush to get out of school; stay in and develop your craft. Finally, do the Buckbeak test as I mentioned above.

3DA: *What are the key skills required to work as a character animator or character rigger?*
BZ: Observation, patience and the goal to push technology. Everything you do, imagine you have to present it to George Lucas. Then you will work harder and will expect the absolute best from yourself and your team.

3DA: *If there was one feature missing from current software apps that you would like to see implemented to help with any aspect of CG animation, what would it be?*
BZ: I saw a demo from a company where you can actually draw arcs of motion on a Wacom tablet and the object will have an animation path.

3DA: *Professionally, what's the most satisfying project you've worked on and why?*
BZ: Seeing my name at the end credits of *Star Wars: The Force Unleashed, Ultimate Sith Edition* makes me incredibly proud. I saw the first *Star Wars* film when I was three in 1977. It motivated my whole career. To see my name in a *Star Wars* product gave me a sense of satisfaction.

3DA: *What would be your dream project to work on?*
BZ: One that continues to push film/game convergence on every level. The ultimate goal for me would be to have an engine that supports a controlled character and the user cannot distinguish between real-time and render.

H

D Tiger Woods PGA Tour 09

E Character work on NFL Tour

F Indianna Jones and the Staff of Kings

G Artwork from SW: TFU Ultimate Sith edition

H College Hoops 2K7

I The Ultimate Edition in full

I

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The best course and freshest talent from universities around the globe...

University of Westminster

BSc (Hons) Computer Games Development

The computer games industry and 3D go hand in hand, and there are plenty of career paths students can travel down with the right kind of training. The University of Westminster offers a great course for those who are looking for a way into the computer games industry in the form of the BSc (Hons) Computer Games Development degree.

The course has been specifically moulded to produce graduates that are ready for the industry, with a great skill base attuned to the needs of the modern-day industry giants. With coverage of all aspects of development, students learn everything from game design and production through to games programming.

With both technical skills and creative skills at the core of the course syllabus, students at the University of Westminster can expect to graduate with a range of talents that will help them make the transition from university life into a new, relevant career in games.

Year one of the course introduces students to the fundamental concepts of computer games and games development. During this year, they are given their first taste of the hardware and software components of computer games and will learn the essential concepts of computer programming. Students are also introduced to the maths involved in programming, too.

By year two, students' 3D skills will be challenged and honed, with an introduction to 3D graphics programming, game platforms and real-time graphics. Maths and games physics play a pivotal role, and they will also learn about 3D modelling and mobile programming.

In-between year two and three, students are actively encouraged to take a yearlong work placement to help development their skills, gain industry experience and build the necessary contacts for future career development. On their return to complete year three students specialise in a chosen area of expertise, such as AI (artificial intelligence) in computer games. Students take on a large-scale final project, which will make up part of their overall portfolio from the three years of study.

The teaching method throughout the degree includes lectures, practical laboratory sessions and tutorials. Students are assessed continually during the three-year period, which is also combined with formal exams.

The University of Westminster is split into five campuses, with the Computer Games Development course based in Harrow, 12 miles from Charing Cross. There are great transport links to the city centre. This course is a great choice for those who are serious about a career in the games industry, with a thirst for knowledge and a drive to forge a career path for themselves.

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International Baccalaureate 28 points (minimum)
BTEC National Diploma/Certificate MMM/DD
Advanced Diploma grade C in IT or Engineering and relevant ASL at grade C

> "The BSc (Hons) Computer Games Development course is part of the Westminster Skillset Media Academy Network"

Anastassia Angelopoulou senior lecturer in Computer Science

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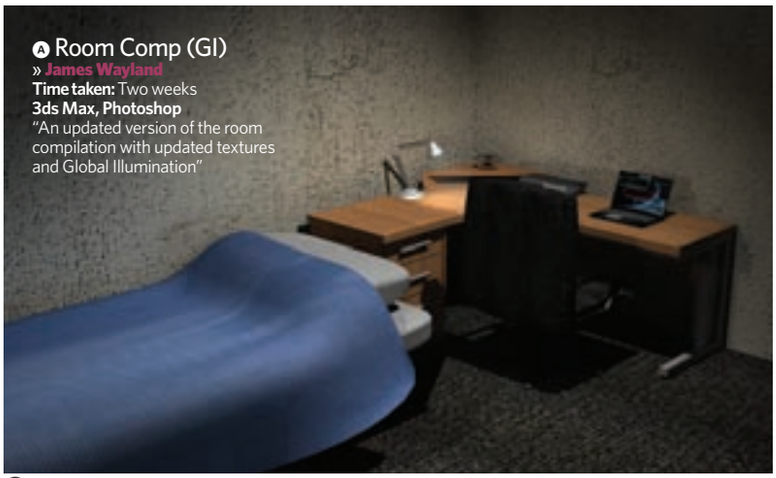


A Room Comp (GI)
» **James Wayland**
Time taken: Two weeks
3ds Max, Photoshop
"An updated version of the room compilation with updated textures and Global Illumination"

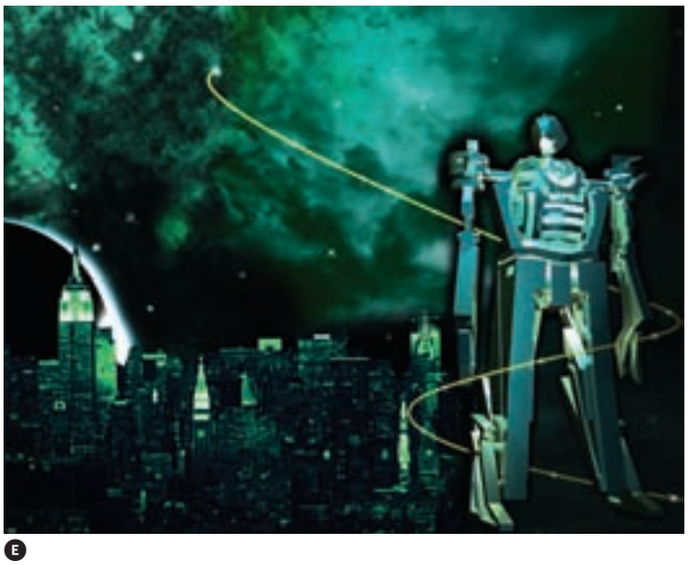
A

B

C

D Game Character
» **James Wayland**
Time taken: Two weeks
Motion-capture system, Maya
"The model was created using reference pictures to gauge size and depth; from there, the concept images were used to form the detailed areas"

D



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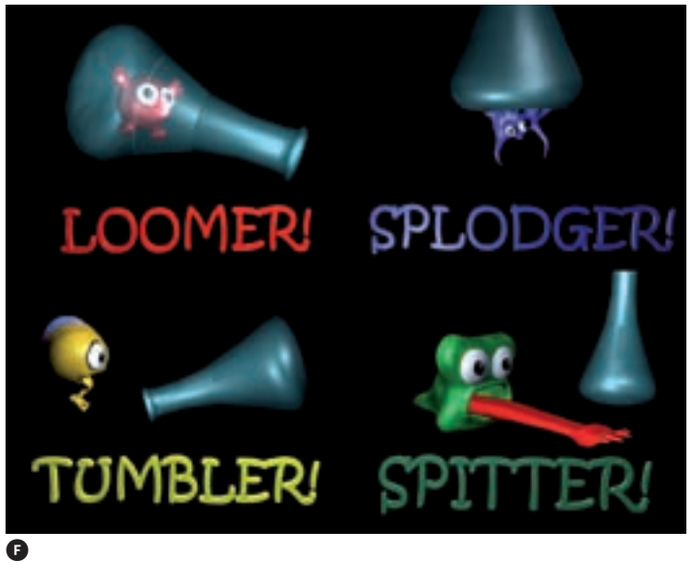

F

B The Vertical Market
» **Joseph Arumeni**
Time taken: One month
Maya
"This is the central market in Tyrainnia, the city I have created for my anime TV show"

C Novum_Londinium
» **James Wayland**
Time taken: Nine and half weeks
3ds Max, Poser, Photoshop, XNA Game Studio
"During the Dare to be Digital competition, we were asked to create some promotional material for our games. This was the main attraction for our booth"

E One Shall Stand, One Shall Fall
» **Umbreen Khan**
Time taken: One month
3ds Max, Photoshop
"Model based on the character Megatron from the film *Transformers*. Effects created in Adobe Photoshop with use of layering, photomanipulation and lighting"

F Splats Characters
» **Steven Boyle**
Time taken: One week
Maya, Photoshop
"Four characters created for a game in Dare to be Digital 2009"

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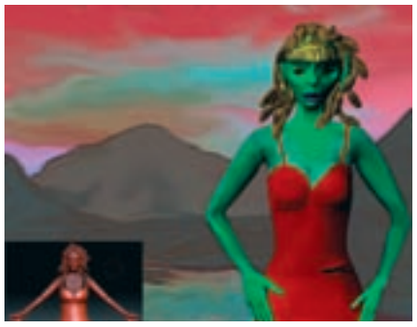
Uni focus

G Renovated Church
» **Aurore Dimopoulos**
Time taken: Five days
Maya, Photoshop
"The model was created in Maya from a series of reference images of a larger building. The textures and Normal maps for detail were created using Photoshop"

> "Our students participate in international game competitions, are panel members in game conferences and work in small start-up companies as game level designers, QA testers and junior programmers"

Anastassia Angelopoulou senior lecturer in Computer Science



H Medusa
» **Steven Boyle**
Time taken: About a week
Maya, ZBrush, Terragen and Photoshop
"I created a low-poly mesh. Within ZBrush, I added detail and used Photoshop to create concept art for a game"

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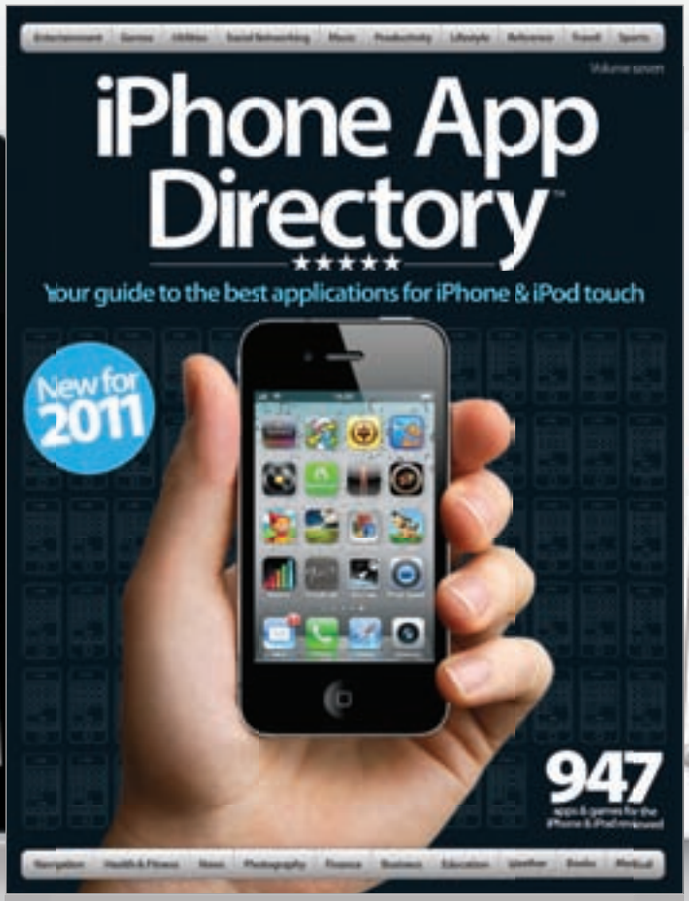
It's a jungle out there. Swing through it

iPad



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